



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

Columbia University
Contributions to Education
Teachers College Series



376.6
C 72.61



LELAND-STANFORD JUNIOR UNIVERSITY



SCHOOL OF EDUCATION
LIBRARY

THE CONCEPT OF METHOD

BY

GERHARD R. LOMER, PH.D.

TEACHERS COLLEGE, COLUMBIA UNIVERSITY
CONTRIBUTIONS TO EDUCATION, NO. 34

STANFORD LIBRARY

PUBLISHED BY
Teachers College, Columbia University
NEW YORK CITY

1910

GERHARD LOMER

C

Copyright, 1910, by GERHARD R. LOMER

VIAJES AL DIAPOSITIVO

PREFACE

There is in much of the philosophical writing of the present day a tendency to indulge in a sophisticated consideration of the *minutiae* of various aspects of experience, rather than an attempt to attain an organic view of the method of experience itself. The somewhat sudden introduction of scientific method into educational work and its widespread application to the phenomena of the school have necessarily involved a corresponding temporary neglect of the great body of intellectual and spiritual tradition which, after all, is the life of the school as an institution. The fundamental problem of education must always be, in its broadest terms, the character of the process of interaction between an immature developing individual on the one hand and a more or less permanent organisation of social ideals and habits on the other hand. Historically the tendency has been to emphasise either of what we may call these "terminal aspects" of the educational process to the comparative exclusion of the other; and the problem of the educational theory of the present day, if it is to take advantage of current conceptions of organic unity and of functional activity, will be to examine more closely this process of interaction between children, with all their infinite promises and their unrealised potencies, and the social media through which alone they can reach their fullest and highest development. It is this interaction which is the method of education.

With regard to the spirit in which the problem is to be approached, a word or two of explanation may not be out of place. Children themselves draw near to the multiplicity of their juvenile experiences with the unconscious though implicit purpose of developing and of organising their little world. What they seek to do this consideration also attempts: the organisation and the interpretation of the method of experience;

and it approaches the problem, as far as may be, in the same simplicity of spirit, seeking to find in the "blooming buzzing confusion" of the complications of experience some unity, some coherent process of development, some idea of method. In view of some of the tendencies of contemporary education, there is need to repeat those wise words which were uttered by Francis Bacon three centuries ago, and which contain the key to the whole problem of method: "Nay, it is a point fit and necessary in the front and beginning of this work, without hesitation or reservation to be professed, that it is no less true in this human kingdom of knowledge, than in God's kingdom of heaven, that no man shall enter into it 'except he become first as a little child.'"

The general course followed in this consideration of the historical significance and of the epistemological interpretation of the method of experience corresponds, as nearly as the limitations of material and of subject allow, with the general course of experience itself, no matter in what particular form or phase that experience may present itself. Whatever unity there is, therefore, in the following pages will be due in the first place to the purpose underlying them: the tracing out of the implications of a too often uncritically accepted course of experience; and, in the second place, to the identity of the method employed in approaching each of the particular problems that present themselves. For it is true that when method is realised in its character of organic unity, it can be seen as well and as thoroughly in microcosm as in macrocosm, in typical instances as well as in a detailed chronological conspectus.

A word of explanation may seem to be necessary in connection with the selection of the various types which have been chosen for consideration in the historical chapters, and which form the basis for the later interpretation. Other and more numerous philosophers and scientists might well have been included had the aim been historical completeness and not merely the review of a few typical instances of thinkers whose main object was to examine and to organise the method of experience.

The *lacunae* in the concluding chapters cannot be more apparent to the reader than they are to the writer**Οταν συντελεση̄ ἀνθρωπος τότε ἀρχεται, και ὅταν παύσῃται τότε ἀπορηθήσεται.* Their

justification lies in the fact that they are natural and inevitable in the treatment of such a subject as the one under consideration. All that is teleologically implied in any process is rarely genetically realised in the more or less fortuitous course of temporal development. There must always be aspects of a subject which will be part seen but never wholly realised, for that prospective power of vision which the spirit exercises is one phase of the method of our experience itself.

Hence, while this treatment of the Concept of Method seeks to preserve a unity which comes alone from the organic nature of its thought, it must suffer at the same time from an incompleteness which is characteristic of all that is organic when regarded from the point of view of the immediate realisation of all the implications that are latent in it. But since a certain organic unity and the possibility of further development are characteristic of every subject which is regarded from the functional point of view, the non-appearance of these qualities would indicate a lack in the method of treatment itself.

Whether these notes—for they are little more—will even prove suggestive to those whose thoughts tend in the same direction has scarcely been anticipated. Their main purpose is to emphasise the strong necessity in the educational theory of the present day for an analysis of the process of experience itself with a view to realising its organic character, to making apparent its implications, and to maintaining its ultimate reality, in idea, as the method of our existence.

The obligations of this treatment of the subject of method to the general body of philosophical writing can be only imperfectly indicated in the Bibliography appended it is indebted for its original suggestion and for its final form to Dr. John Angus MacVannel, under whose supervision this dissertation has been written.

G. R. L.

CONTENTS

	Page
Introduction.....	9
PART I: HISTORICAL TYPES OF METHOD	
Chapter I. The Greeks.....	12
Chapter II. Bacon	20
Chapter III. Descartes.....	32
Chapter IV. Comenius	36
Chapter V. Kant.....	41
PART II: THE FUNCTION AND INTERPRETATION OF METHOD	
Chapter VI. The Idea of Development.....	47
Chapter VII. The Interpretation of Experience.....	56
Chapter VIII. The Function of Method.....	80
Bibliography	97

THE CONCEPT OF METHOD

INTRODUCTION

Juvenis, oblati ingeniosis inventis, quaerebam ipse per me possemne invenire etiam non lecto auctore: unde paulatim animadverti me certis regulis uti.

—*Cartesii Cogitationes Privatae.*

There is a fundamental community in the method of human experience which transcends the bounds of space or the limitations of time. In spite of the apparent multiplicity of the materials and notwithstanding the obvious variety of ways of teaching and learning, the underlying process of education is essentially the same, for it involves the organization, the control, and the interpretation of the experience of an individual who is developing his personality in a human environment. When, from the point of view of the race, this process of development is raised to social consciousness, Education comes into being as an organised social process of personal development.

Since it is conditioned on the one hand by the limitations of the so-called educational materials, and since it is clearly dependent, on the other hand, upon the progressive development of philosophical thought, the method of education has had a varied history and has, at different times, emphasised now one and now another aspect of experience. One has but to glance at the history of education in China, in Greece, in medieval Europe, and in present-day America, to realise the great changes that have taken place in the materials of education, and one has only to mention at random such names as Socrates, Milton, Rousseau, and Spencer, to realise that the methods of teaching have differed at least as much in character as in chronology.

The greater emphasis in educational thought has hitherto been placed upon the materials of education or upon special details of educational procedure from a purely formal standpoint, rather than upon the materials in their *relation to the process*. This tendency has manifested itself in two different ways:

(1) In the course of study, the program, or the curriculum there has been inquiry into the nature of the materials and a reorganisation of these upon the basis of recent psychological study of the needs and capacities of the child.

(2) There has been an attempt to psychologise material, but in such a way that the point of view of the child has tended to prevail over the social aspect of education, and method has been conceived of as something which the teacher can apply to the material she gives the child, instead of being regarded as the very process of interaction between herself and the child and the material, all in one process of experience.

There is, however, in educational thought, as in all other branches of scientific and philosophical inquiry, especially when the materials are in process of reorganization, the tendency to overlook characteristic underlying ideas. It is these very ideas which give significance to the materials by showing their organic interrelation as factors in the experience process, be it individual, social, or racial. It is these dominant ideas of principles which give unity and form to all activity, whether it be in what we call the world of nature or in the world of social action.

If, then, we take on the one hand the materials that are selected as having educational value in the school course, and on the other hand take into consideration the child with his impulses, instincts, and activities or energies, we find that we have what we may call the two terminal aspects in the process of education. The problem before us is to see how these two elements are related to each other in actual experience. In other words, we have to see how the school affords material for the social direction, distribution, and transmission of the potential energy possessed by the child: how, in a word, education is a *method of giving form to the experience of the child*.

The purpose of this consideration of the concept of method is therefore a twofold one: it attempts, in the first place, by a consideration of typical examples, to analyse the process of experience, both individual and social, in such a way as to show that its fundamental characteristics are Unity, Interaction, and Development; and it seeks, in the second place, to indicate the method of experience, the function of knowledge in raising activity to consciousness, and the method of the education of the individual through the social selection of materials and the social control of individual activities by means of the function of a standard of method.

CHAPTER I

THE GREEKS

There are three fundamental intellectual interests that manifest themselves in divers forms at all times in the history of philosophy. The first of these is man's knowledge of the universe in which he finds himself; the next is the nature of his own experience; and the last is the problem of human conduct.

It is not unnatural that among the Greeks, who were the first European people to raise to consciousness the problems of experience, we find the genesis of these three fundamental aspects of philosophical inquiry. Hence a brief sketch of the Greek attitude to these typical phases of experience forms a natural starting-point for a consideration of the later development of the concept of method, and it has the additional advantage of emphasising the aspects of genesis, interaction, and teleology which are involved in all interpretations of experience.

In the first place, the problems of the organisation and of the interpretation of nature which exercised the ingenuity of Thales (b. *circ.* 620 B.C.), Anaximander (b. *circ.* 610 B.C.) and Anaximenes (b. *circ.* 528 B.C.) were practically the same problems for which Copernicus, Galileo, Kepler, and Bacon subsequently sought a new solution. In the second place, the distinction between sensation and reason, how the senses and the judgment are related to one another in the experience of the individual, and how far knowledge of reality was possible, are philosophical problems which have persisted from the time of the Sophists, through Scholasticism, Descartes, Locke, Hume, and Kant down to the present day. Finally, the question as to what the ends of human conduct are, and as to how far knowledge is capable of realising that standard, is the great ethical problem for Socrates and Plato as it is for Kant and modern teleology.

These three phases of philosophical inquiry, then, exist in more or less conscious form in Greek thought, suggest problems which are solved variously by different schools, and persist throughout the whole course of the later development of European thought. They reach definite organised expression in Bacon, in Descartes, and in Kant, who may be taken as perhaps the most significant types of, first, the scientific and cosmological investigations of the human mind into the materials of experience; second, of the examination of experience itself, with a view to ascertaining the relation of the sensory and of the rational elements whose interaction makes up the course of experience; and third, of the criticism of the processes and standards of knowledge, with a view to the determination of the ultimate validity of human experience.

The aspects of the history of the concept of method which call for immediate consideration are, therefore, (1) the manner in which the Greeks interpreted the phenomena of nature and formulated their scientific beliefs in a cosmology; (2) the way in which they attempted to relate the phenomenon of sense, experience, and the idea; and (3) the theory which they formulated with regard to the function of knowledge as a guide to conduct, and of philosophy as the way or method of the highest human experience.

The investigation of nature with a view to an organisation and interpretation of its phenomena was first undertaken among the Greeks by the *Ionian* school. As Aristotle afterwards said, they found everything full of life—*πάντα πλήρη ζωῆν*. Their main object of inquiry was genetic; they were chiefly concerned with the origin of things, and tried to reduce the multiplicity of the phenomena of the universe to a single principle or simple original substance, such as water, or vapor, or something unlimited and infinite, endowed with life. Following the early Ionians, came the *Pythagoreans* (fl. 530 B. C.), with their interest in mathematics, and reduced all things to number. They had a higher conception of the nature of reality than their predecessors, and in their abstract conception of quantity, and of the harmony of opposites, which they applied in their ethics as well as in their physics and cosmology, they emphasised the function of philosophy as a guide to the moral consciousness.

of the individual. They thus prepared the way for a later metaphysical inquiry and for the ethical emphasis of later Greek philosophy. They were followed by the *Eleatics*, who gave a metaphysical interpretation to the phenomena of the world. While recognising the problem of change and realising the relation of being and becoming, they attempted to formulate a synthesis of these two aspects in the conception of the ultimate unity and unchangeableness of reality, so that they, either explicitly or implicitly, identify the natural and the divine. Xenophanes (b. 570 B.C.), whose interests were chiefly theological, criticised the Greek anthropomorphic conceptions of what is divine, and emphasised the unity of all things. Parmenides (*circ.* 490 B.C.), more metaphysical in the trend of his thought, chiefly concerned himself with the distinction between not-being and being, the knowledge of which is truth. The senses lead men into error and give rise to common opinion ($\delta\omega\xi\alpha$) which is to be distinguished from right reason ($\lambda\omega\gamma\sigma$). We have here, then, the clear suggestion of the problem which the Sophists were to give up as hopeless and which Socrates was to solve.

So far the trend of Greek thought has been to attempt to reduce the multiplicity of the phenomena of experience to some fundamental unity which is ultimately true and real, and the knowledge of which should constitute the aim of human thought. With the *Later Ionian* philosophers, however, experience seems to involve two elements that cannot be reconciled, and we have the formulation of a dualistic and mechanical conception of the nature of reality. In opposition to the immutability which the Eleatics conceived to be the true reality, Heraclitus (b. *circ.* 530 B.C.) found universal change to be characteristic of experience. Nothing actually *is*, but all things are in a process of *becoming*. Hence, the evidence of the senses cannot be considered as true; only rational knowledge is valuable, and this rational knowledge ($\lambda\omega\gamma\sigma$) is the power that governs the world. Anaxagoras (b. *circ.* 500 B.C.) emphasises his belief that the world was developed by $\mathrm{No}\ddot{\mathrm{o}}$ s out of an original mixture of the particles of all kinds of matter. Mind, itself, is above this material, from which it is distinguished by being simple and unmixed, by being self-governed, and by having power over all the other things.

This dualism of the Later Ionians was carried further by the *Atomists*, except that they rejected the belief in the intellectual direction of the universe, and put in its place a blind necessity. Democritus (b. *circ.* 460 B. C.) believed the world was made up of atoms which had shape, order, position, size, and weight, and which were in motion through natural necessity. In this pure materialism there was neither room nor need for mind or purpose. Even the soul itself is a rarer kind of matter. It follows, necessarily, that the process of perception must consist of a series of material contacts, and that there is no essential difference between thought and sensation.

Such an interpretation of experience naturally prepares the way for the *Sophists* (fl. 450-400 B. C.) who finding as little validity in the reason as in the senses, came to despise knowledge itself. They were chiefly concerned with an examination of the conditions and the limits of knowledge, and, because of their attitude, were the earliest of the European sceptics. Protagoras (b. *circ.* 480 B. C.) held that things existed only for the individual who perceived them, and that therefore truth could be only subjective. Hence man must be the measure of all things, and knowledge can be only relative. There is no such thing as objective truth, and all knowledge is merely a matter of opinion, which is developed by the *eristic* method. This negative interpretation of experience was given its extreme expression in Gorgias, who held that nothing exists, that even if it did exist we could not know anything about it, and that even if we could know something about it, we could not communicate our knowledge to others.

Such was the condition of the problem of the interpretation of experience when Socrates (469-399 B. C.) took it up. The Sophists had given up the search for truth, being unable to find it either in the world around them or in their own minds. Socrates found his method through the examination of his own experience, and, with the motto *γνῶθι σεαυτόν* ever before him, he developed his distinctly individual *heuristic* method. Starting with the assumption that he knew nothing, Socrates aimed at self-control through self-knowledge. There was therefore a negative and a positive aspect to his method: the former concerns itself with the process of conviction of ignorance as a

necessary preliminary stage in the development of knowledge; and the latter had for its aim the inductive formulation of concepts or definitions, by means of a prolonged process of interrogation of experience, in which master and pupil both take part as mutually interacting forces.

The earlier Greek thinkers had realised the difference between sense-impression and the ideas of reason, and the Sophists had attempted to show that both were untrustworthy. Socrates took these two elements in knowledge and demonstrated that though sense-impression and common opinion are only partial glimpses of reality and need to be tested and regulated by criticism, yet when they are organised according to logical method they do ultimately give us true knowledge. This true knowledge when adequately realised in human life is synonymous with virtue. It is clear then that the interest of Socrates was primarily ethical. He applied his method not to the phenomena of the physical universe but to the sphere of man's moral activity, to the problem of the conduct of life. His significance as an early interpreter of the method of experience is, therefore, that he connected the speculative activity of the mind with the practical affairs of everyday life, and that he analysed the teleological conceptions that had been more or less unconsciously existent in the background of earlier speculations. Happiness and virtue which constituted the *summum bonum*, he held to be not mere *εὐτυχία*, in which passivity was over-emphasised, but rather *εὐπραξία*, in which the subjective state was conditioned by the quality of the activity which it manifested and which was essential to its functional reality as an ideal moral condition.

It is an indication of the universality of Socrates' philosophic interests that he should have been claimed as the intellectual starting-point of three contrasted lines of philosophical development: his habitual disregard of the luxuries and even of the conveniences of physical existence was diversely embodied subsequently in the theories of the Cynics and the Stoics; his habit of suiting himself to his social environment and of being all things to all men was reflected in the experiential philosophy of both Cyrenaics and Epicureans; and his high moral purpose and spiritual insight was idealised in Plato and interpreted in Epictetus, Seneca, Dio Chrysostom, Marcus Aurelius, and others

of the same philosophic temper. His significance in the historical interpretation of experience lies in the fact that he was the earliest to develop the inductive method, that his critical analysis of the process of knowledge marked the genesis of epistemology, and that he was the first to formulate a complete system of ethics, based upon the phenomena of actual experience and interpreted in the light of the highest ideals of human activity.

The work of *Plato* (427-347 B. C.) was an organisation and an extension of the theory of Socrates. The knowledge that Socrates conceived to be the truth that governed all virtuous action Plato interpreted more fundamentally as after all the true nature of being, as the ultimate reality. The relation between Socrates and Plato is no less clear in epistemology and metaphysics. The concept at which Socrates arrived through his individual method of interrogation, of the elimination of unessential elements, and the inductive formulation of a complete definition, Plato expressed metaphysically in his theory of the *Idea*.

Such being the general course of the Platonic interpretation of experience, it is necessary to go back to the point at which he took up the problem left by Socrates, in order to realise the manner in which Plato developed his theory and embodied in it elements that had been gradually developing from the time of the earliest Greek speculation.

All philosophy, according to Plato, begins with the recognition of a problem, with the realisation of some phase of existence that has not yet been organised as a part of our rationalised experience. This doubt or difficulty arouses in us a desire to understand and to solve the problem which our experience presents to us, and the process of solution is a discipline that is moral as well as intellectual, for virtue and knowledge have no teleological distinction, however much they may differ in their genesis. There seems to be in man an instinct to attain virtue and knowledge, to realise his true nature in the functional interaction of these two aspects of his experience, and until that ideal is accomplished the soul's true nature is not realised, and the spirit of man can find no rest. The passionate desire for truth, the insatiable urging towards full insight into the nature of vir-

tuous action are the twofold source of all human activity that has ultimate spiritual significance.

How then is the soul of man to realise this perfect activity—how is it to become self-active in a true sense, and independent of the misleading *idola* of daily experience? The answer to this question involves the consideration of Plato's conception of knowledge and a brief statement of his epistemological theory. His problem is ultimately the same as that of Kant, though the Greek and the German solution differ considerably. Both start with that very apparent distinction between the phenomena of sense-perception and the logical ideas of the reason, which had exercised the mind of Heraclitus, of Anaxagoras, of Democritus, and the Sophists. There is on the one hand the actually existing multiplicity of impressions and common opinions: contrasted with that unorganized and apparently heterogeneous experience, there is in man's mind a constant urging toward the discovery of something permanent among the changes and chances of this mortal life, of something unified among the variety, of something spiritual which is the reality behind the deceptions of the purely physical.

The solution of the difficulty involved in this apparently universal contrast in experience Plato explained in his "Theory of Ideas." The Heraclitean flux and the Socratic insistence upon universal truths Plato combined, and held that these universal truths, which are permanent entities, manifest certain phases of themselves through material things. But on account of the physical limitations of the material, it can never fully express the complete reality which exists in the "Idea"; nor from a purely logical standpoint can a concept which is universal be adequately realised in a form which is particular, individual, and subject to the limitations of time, space, and material, and which after all only partially participates in the nature of the "Idea" which is the ultimate reality. The logical can never be synonymous with the sensible, nor the teleological with the genetic.

The striving to realise the nature of the "Ideas" constitutes the process of experience and of education, but the method is difficult and involves many degrees ranging from ignorance and error up to the perfect realisation of the principle or "Idea" of humanity. At the end of the sixth book of the "Republic,"

Plato divides the objects of our experience into four progressive stages of which the two lower deal with the phenomena of the visible or sensible world and opinion, and the two higher with the aspects of the intelligible world and knowledge. To each of these classes of objects there is a corresponding stage in the development of human intelligence:

(1) *Opinion or conjecture* (*eikaróia*), which has for its objects images, such as shadows, and reflections from smooth bright surfaces.

(2) *Belief* (*pírōsis*), which deals with the objects which are the originals of the images which resemble them, and which include animals, everything that grows, and all kinds of workmanship.

(3) *Understanding* (*diávōia*'), which has for its objects symbols, diagrams, and models, and which proceeds from hypothesis downward to conclusion, and logically involves the process of deduction.

(4) *Pure Intelligence or Dialectic*, which deals with the Ideas or Forms themselves, which involves no sensuous representation, and which proceeds from hypothesis upward to first principles inductively by means of ideas alone.

This classification of the different stages involved in the method of knowledge is further illustrated in the analogy of the Cave in the seventh book of the "Republic," and its general nature is emphasised throughout those of Plato's dialogues whose primary interest is epistemological.

Plato's historical significance in the philosophical interpretation of the method of experience lies first in the fact that in his "Theory of Ideas" he involves the conception of a rational universe whose ideas and forms can be realised through the phenomena of common experience which partially *conform* to the idea, and imperfectly embody the law or method of universal principles: a conception of the world which implicitly underlies the later investigations of Bacon. Further, Plato analyses the process of experience and seeks to determine the validity of sensation and the limitations of knowledge, thus laying the basis for the epistemological *critique* of experience which was to be the work of Kant.

CHAPTER II

FRANCIS BACON

Leonardo da Vinci (1452-1519), himself a man of most varied and active experience, stated that "the interpreter of the artifices of Nature is Experience, who is never deceived. We must begin from experiment and try to discover the reason"; and Bernardino Telesio (1508-1588), led by the study of nature to react against the traditional doctrines of Scholasticism, believed that "the construction of the world and the magnitude and nature of the bodies in it are not to be investigated by reasoning, as was done by the ancients; but they are to be apprehended by the sense and collected from the things themselves." These two intellectual tendencies thus clearly expressed by so diverse men as da Vinci and Telesio were combined in the work of Francis Bacon (1561-1626).

The first insisted upon the primacy of experience as the method for the attainment of knowledge in the interpretation of nature; the second with his motto *non ratione sed sensu*, criticised the method of purely intellectual deduction which was one of the chief epistemological instruments of the scholastic logic; and the third related these two canons, both in his scientific practice and in his philosophical theory, in such a way that for him the great problem of experience became the investigation of *the method of knowledge*.

There is a peculiar necessity in scientific and in educational investigation for the individual to develop in himself a breadth of mind which enables him to see the large problems which underlie the more obvious and easily grasped details, to look at processes and the materials involved, in their proper perspective, and to emphasise, somewhat more consciously than hitherto, the problem of method. Both by nature and by force of circum-

stances Francis Bacon was peculiarly suited for such an inclusive consideration of the processes of thought and nature, and for the expression in permanent literary form of many of the intellectual tendencies which were beginning to make themselves manifest on the one hand in the philosophical reaction against the barren intellectualism into which the later scholasticism had degenerated, and on the other hand in the organisation of the new objective worlds which had been disclosed to science by the work of such men as Copernicus, Vives, da Vinci, and, in Bacon's own time, Galileo, Descartes, Kepler, Grotius, and Boyle.

Possessed of a literary skill that has made him, both by his "Essays" and by his "New Atlantis," one of the prominent figures of late Elizabethan and of early Jacobean literature, Bacon ranks none the less high among the earlier of the English philosophers. With an ambitious daring as characteristic of the writer as of the seamen of "the spacious times of great Elizabeth," Bacon sketched out in the plan for the *Instauratio Magna a globus intellectualis* which he could not circumnavigate and whose bournes were beyond even his ken. Yet such was the prospective power of his mind, and so great was his ability in the intellectual preconstruction of experience that he anticipated many of the methods and processes of later science. With a characteristic philosophical contempt for the simplicity of the vulgar tongue, Bacon sought to give his work greater permanence by the use of the Latin language; and it is only further proof of the vitality of his thought that his work still stands translation and still continues to hold suggestions for the modern thinker.

In considering Bacon as one of those philosophers who have concerned themselves with the problem of the method of knowledge, and in attempting to estimate the value of his contribution as a basis for the subsequent development of epistemology, it seems convenient to group his ideas under these four heads:

- I. The purpose or end of knowledge.
- II. The means or materials of knowledge.
- III. The method of knowledge.
- IV. The educational implications of Bacon's method.

I. *The Purpose or End of Knowledge*

Historically the question of the true end of knowledge has always been more or less closely bound up with the problem of the *summum bonum*, and sometimes so intimately that the two become synonymous. In all cases the end of knowledge has depended directly or indirectly upon the particular ethical and intellectual atmosphere of the age in which the question has been consciously asked. With the Greeks the end of knowledge was conditioned by their peculiar conception of the development of an ethical personality, and the end of knowledge became the realisation of the Greek ideal of the moral life; with the medieval Christian the purpose of knowledge was to subserve divine ends and to assure the attainment of everlasting salvation; with the modern scientists, of whom Bacon stands as one of the earliest, the purpose of knowledge becomes more immediately utilitarian and pragmatic in character, and its mission primarily the amelioration of the physical conditions of the life of man.

Bacon frequently expresses his belief in the immediate practical character of human knowledge. In the "Valerius Terminus," one of his earliest philosophical works, he says that "the true end, scope, and office of knowledge" consists not in discourse or in arguments; but in effecting and working, and in discovery of particulars not revealed before, for the better endowment and help of man's life; and throughout his writings and his life he has ever before him the aim of attaining knowledge that will be of practical value to mankind. It is perhaps well to remember in this connection that he met his death in experimenting with the principles of cold storage.

Bacon realised very clearly that there is a correspondence between the thought of man and the course of Nature, and that man can command and interpret the forces and materials of nature while himself remaining subservient to the laws of this same nature of which he is a part. The only limit to his knowledge is that imposed by the character of the faculties with which he is endowed. In addition to the actual physical imperfections of the senses as instruments for the discovery of true scientific knowledge, "facility to believe, impatience to doubt, temerity to answer, glory to know, doubt to contradict, end to gain, sloth to search, seeking things in words, resting in part of nature," all

contribute to the restriction of the true usefulness of the force of nature. Man's moral and physical imperfections and limitations, nevertheless, do not affect the character of knowledge itself. However oblique the sense or alien the mind of man, the truth of being and the truth of knowing are one and the same. Epistemology and ontology meet on the same ground, and we have in Bacon a foreshadowing of the Cartesian dictum of the necessary interrelation of thought and existence. Descartes says "*Cogito ergo sum*"; Bacon had said "A man is but what he knoweth. The mind itself is but an accident of knowledge, for knowledge is a double of that which is." (Works, Lond. MDCCLX. v. 5. p. 69.) True knowledge therefore cannot be gained from the works of the ancients or from any purely subjective method of reasoning with the symbols of thought, but is to be obtained from an examination of nature; and even then the chief attention of the scientist should be directed not to what has already been done but rather forward to what may yet be accomplished with the materials and forces which nature provides. Bacon manifests the prospective practical character of the man of science rather than the retrospective conservatism of the typical scholar of his day. His purpose in writing the "*Novum Organum*" was to cover the whole field of science known at that time and to discover its limitations, and then on the basis of that investigation to proceed to fill up the *lacunae* and to remedy the deficiencies. Such was the Great Renewal which he planned for man's empire over the universe; and the progressive identification of science and nature, of experience and reality, formed for him the end and purpose of knowledge.

II. *The Means or Materials of Knowledge*

Since man is endowed with capacities to receive impressions from the world of nature and with the powers for the organisation of these impressions and for the modification of the materials of nature, and for the transformation of natural forces, one of his chief occupations is to become familiar with the materials and opportunities which are offered to him by his environment. Knowledge of divine things is beyond the sphere of scientific investigation, according to Bacon; but familiarity with his own nature and with social phenomena should be among the first

objects of human inquiry. Then a knowledge of the phenomena of the world of nature should be gained, and in this process of gradually becoming more and more familiar with the double world of man and of nature the problem of adjusting the latter to meet the conscious needs of the former will suggest itself to the scientist and to the true lover of knowledge. To give a detailed account of the materials that Bacon considered to be the means for the gaining of knowledge would be outside the purpose of the present consideration: long lists of the subjects of his investigations and of the problems which he had set himself to solve may easily be found scattered throughout his writings.

III. *The Method of Knowledge*

It is when we come to consider the method of knowledge that we realise more strongly than ever the empirical character of the philosophy of Bacon. The purpose and aim was distinctly utilitarian; the means are the actual real phenomena of the world of nature round about him, and not the words and symbols of schoolmen; the method throughout the course of his investigation has to deal with actual objects or phenomena that have a real significance in the life of men of the present day.

In the interpretations of Bacon's writings too much emphasis has been placed upon his championship of the method of Induction and his criticism of the logical process of Deduction. In the histories of philosophy and in popular interpretations it is customary to make a writer stand for some theory which perhaps is new in his work or which places a new emphasis upon a widely prevalent though unconsciously accepted process. Such seems to have been the fate of Bacon with the less judicious of his critics, and this fate seems to coincide with Bacon's own estimate of his work. However, since Induction as a method of practical experience has always been part of the means used by man for the control of nature, and was so recognised, partially at least, by the ancients, and as later investigators seem to agree that Bacon's extravagant claims for the efficacy of his new *ars inveniendi* have not been justified by practical results, it would seem advisable, from the vantage point of the perspective afforded by time, to place Induction more in the relative position which it really occupies in Bacon's system. That it is not after

all the sole instrument of science is abundantly evident when we consider the methods of knowledge which he elaborates in his "Advancement of Learning." It is natural that a writer whose first purpose is to consider the deficiencies of the then existing body and processes of scientific knowledge should emphasise the lack of practical results derived from deductive or syllogistic reasoning, which he criticises as "being too confused, and letting nature escape from our hands." Bacon realised that in syllogism the conclusion was logically and epistemologically inherent in the major and minor premiss, and that the major premiss itself was a conception the truth of which depended ultimately upon Induction,—a method which up to that time had not been critically examined. Hence, while granting the efficacy of the deductive process for guaranteeing the reality of particular propositions, he questioned the validity of assuming the major premiss merely upon the unscientific process *per enumerationem simplicem*. This antique method of Induction he considered "scanty and slovenly" on account of its unscientific neglect of negative instances; but, while recognising the deficiencies of the logic of the scientific method of his own day, Bacon was forced to leave its complete working out to the epistemology of the nineteenth century.

In the attempt to obtain a fair and well-proportioned conception of Bacon's theory of method, there seems therefore to be demanded a consideration, first, of what he means by the term "method"; second, of the four great methods of knowledge or experience; and, third, of various conditions which determine the operation of method.

(1) Bacon's conception of method, though narrow in comparison with the modern interpretation of the term, is nevertheless a great advance upon the earlier restricted use of the word to indicate solely a logical process. Method for Bacon means, in its widest sense, the interpretation of nature, and hence differs from the logical use of the term both genetically and teleologically. Deductive logic begins where Bacon's method ends: it starts with a generalisation; Bacon ends with a generalisation. Logic ends with the recognition of the nature of a particular; Bacon begins with particulars. He practically anticipates Kant's recognition of the relation between the particular and the universal as represented in the mutual epistemological necessity of

Conception and Perception, when he recognises the logical dependence of Deduction upon Induction for its validity. In its narrower sense Method has its proper place in the organisation of experience, between the perception of individual phenomena and the expression of that experience to others. It involves judgment, which requires as its material certain phenomena, and as its justification or end the transmission of the judgment of value to others or its recognition as a basis for further scientific progress. For Bacon recognises that the practical value of method is twofold: on the one hand it is to be directly put to utilitarian ends, and therefore corresponds to applied science and all the branches of the practical arts; and on the other hand, it is to form the basis for further progress in knowledge, in which capacity it corresponds to pure science. When he comes actually to apply his conception of method as the organisation of experience for practical or purely scientific purposes, Bacon, with one eye on the nature of things and the other on the uses of mankind, recognises four distinct stages which are involved in his method: (a) the construction of a chart of civilisation and science, with their practical contributions to human welfare; (b) the formulation of the possible demands that may justly be made upon the various branches of the sciences and arts; (c) the estimation of the degree to which each has attained or has come short of the measure of usefulness demanded; and (d) an indication of the means and materials by which deficiencies can be remedied.

Though formulated with regard only to science, these stages in method have important educational implications which will be considered subsequently.

(2) The application of Bacon's general conception of method to the process of experience is no less important than his explanation of the term itself, and it is no less fraught with educational implications. It is plainly evident here that, though he draws his illustrations mainly from science, Bacon continually has in mind his former identification of knowledge with reality, or experience in general. The method of knowledge is, first, to discover or invent what is sought; second, to judge whether the means, material, or process actually meets the need; third, to retain this new scientific knowledge by embodying it in some permanent form; and fourth, to transmit the practical results of

scientific investigation to the world at large. Corresponding to these four stages in methodical procedure, therefore, there have grown up four intellectual arts or processes, which may be briefly described as: (a) *Inquiry* or *Invention*, which may deal either with the arts and sciences, or with speech and arguments, the great instrument of the former being Induction and of the latter, Rhetoric. (b) *Examination* or *Judgment*, whose chief basis is the social recognition of general propositions, and its chief instrument logical demonstration and the detection of fallacies. (c) *Custody* or *Memory*, which involves the preservation of the results of inquiry by the memories of men or by some system of written record. (d) *Elocution* or *Tradition*, which consists of the expression or transferring of our knowledge to others, and which involves the use of both speech and writing. It is this last which is most directly concerned with the process of teaching, though all four stages are involved in the process of learning.

(3) There are certain conditions which determine the process of knowledge, or the development of experience, which either are involved in the general conception of method held by Bacon or grow out of the nature of the materials and persons with whom he had to deal. He has in mind in this part of his work chiefly the method by which knowledge is communicated to others as illustrated in the writing of scientific and philosophical treatises or in the process of education. In holding that knowledge ought to be passed on to others in the same order in which it was obtained, Bacon seems to realise the difference between the logical and psychological in the organisation of educational material is one that has no counterpart in the learning process itself. That which is the natural way for the investigator to pursue will also be the easiest way for those who follow in his footsteps, thinking over his thoughts after him. The logical organisation of material is something that each one must do for himself if the process is to be of any value to him; such organisation is a totally different process from that involved in the effective transmission of knowledge to another, in writing or by word of mouth, both of which must have due regard to the psychological processes of the learner, whose end, however, is the better organisation of his experience. It is only through the

psychological that we reach the logical, as the standards and the norms are, from the point of view of human experience, genetically later in conscious experience, however implicitly they may underlie every step in the development of that experience when regarded *sub specie aeternitatis*. In the next place, the process of the transmission of knowledge ought to be made as simple as possible, not furbished up in antique terms, nor making use of vague and high-sounding language which is enigmatical to all but the initiated. Quite opposed to mysticism in thought and expression, Bacon is one of the earliest to seek to make science a popular possession, and to wish to enable whoever would to enter into the scientific inheritance which forms part of his social birthright. It follows that in dealing with any scientific subject, the writer or teacher has to bear in mind the nature of his audience, and must have due regard for the familiarity with, or ignorance of, the subject-matter in question upon which he can depend as a presupposition to his discussion. In the actual process of exposition or teaching, one ought not to hide a few axioms or principles under a bushel of illustrations, and thereby give a false impression of method; but one ought rather to proceed by the proof of assertions, remembering that illustrations do not prove, and that the solution of minor questions should be involved in the consideration of larger principles instead of being considered as separate problems. In conclusion, it is to be remembered that in a sense the method of procedure differs in different subjects according to the material involved. The method of experience as a whole is the same, the process of thought is unitary, whatever the subject under consideration; but the organisation of the various materials must proceed in accordance with the laws of their own constitution, just as the mind must proceed in accordance with the method of its own nature. Bacon here suggests the educational problem of the relation of "general" and "special" method, which is responsible for so much confusion in later pedagogical writing. We are reminded again, however, of the distinction between the psychological and the logical in the organisation of our experience, and of the difference between a process as it exists objectively in the relation of material things, and the reinterpretation of that process in terms of human experience through the method of human

thought. It is in the realisation of this distinction that the apparent dualism between "general" and "special" method can be solved.

IV. *The Educational Implications of Bacon's Theory*

In addition to the educational implications that have already been suggested in the preceding sections, there are a few additional aspects of the method of knowledge that are significant for educational practice. Bacon's consideration divides itself into two parts in this connection, the former being critical in character and dealing with the proper preparation of text-books, and the latter concerning itself with practical hints regarding the actual process of teaching. Much of what Bacon has written on these closely related subjects is now embodied in practice, but it is significant of the character of his work that he should have been able to foresee so many of the problems that have since occupied literary exegesis and criticism on the one hand, and educational theory and practice on the other hand.

(a) *Critical.* In connection with the preservation of knowledge and its transmission to future generations, books have been of supreme importance, and the problems connected with this means of widening knowledge are numerous. Among them are the determination of correct readings from manuscripts and faulty texts; the proper and judicious preparation of annotated editions and commentaries, the interpretation of an author in the light of the times in which he wrote—a canon whose neglect in a later age led even so great a *litterateur* as Voltaire to condemn Hamlet as comparable to the "work of a drunken savage," and whose critical significance received due recognition in the work of Taine; the critical estimation of the writings of an author in such a way as to enable a reader to choose that which is of permanent value; and finally, some suggestion as to the order in which the works of a writer may most advantageously be read.

(b) *Educational.* Brought up in the Elizabethan manner by an educational system whose mainstay was the study of the classics, and at the same time endowed with an intense interest in natural phenomena, Bacon not unnaturally may be expected to assume a middle ground in his educational theory and to ex-

press himself on the problem of method rather than on the question of materials. The whole world was the province of his knowledge, and the "Novum Organum" contemplated the whole sphere of man's experience, so that it mattered not so much *what* one had as *how* one did it. The problem that Bacon first suggests is the one that comes first genetically and psychologically in education, and it is one which three centuries of experience have not yet solved satisfactorily, though perhaps Froebel did most to raise the method itself to consciousness. *When* is the process of imparting knowledge to others to start? *With* what is it to start, and which subjects should be withheld to a more convenient season? It is to be noted here that Bacon contents himself with settling the problem without offering any solution, leaving the working out to future generations and contenting himself with the belief that "a faculty of wise interrogating is half a knowledge." Further, it is to be decided whether it is best to begin with the easiest and proceed to the hardest, or *vice versa*, "for it is one method to practice swimming with bladders, and another to practice dancing with heavy shoes." The whole question of the function of the teacher in the educational process is involved here, as well as the problem of learning to study. In the next place, Bacon suggests the question as to the corrective value of certain studies and the disciplinary intellectual function of mathematics and the various branches of science. He raises to consciousness here the whole problem of the curriculum: can there be a similar course of study for children temperamentally heterogeneous? Ought a mediocre well-rounded personality to be the aim of education, or ought specialism and individuality to be encouraged? The questions suggested by Bacon are questions, not of materials, so much as of aims and methods, and their solution is a development not yet complete. Finally, after the selection of studies has been made, there arises the problem of their proper arrangement and of their mutual relation. For instance, should studies be continued for long periods, or should there be frequent variation? Bacon seems to have anticipated the investigations of modern psychology regarding habit, fatigue, and variation of attention, and to have regarded the process of school work as one of infinite significance in the development of the individual, "for as the wronging or cherishing of seeds or young

plants is that that is most important to their thriving, so the culture and manurance of minds in youth hath such a forcible, though unseen, operation, as hardly any length of time or contention of labour can countervail it afterwards." (Ad. of L. Bk. 2.)

To sum up: Bacon stands as one of the first of modern philosophers to raise the problem of method to consciousness. He was not interested in the materials of knowledge so much as in the process of experience itself and, when he does deal with materials, he considers them only as means towards the development and organisation of experience. He insists upon the unity of the method or process of knowledge, and seeks throughout his work to free himself from the apprehension of things *ex analogia hominis* and to see the various aspects of experience *ex analogia universi*, thus foreshadowing the monistic interpretation of the world set forth by Spinoza. Bacon's insistence upon this epistemological unity is all the more significant because he stands as one of the world's greatest empiricists. His empiricism, however, is in the cause of the discovery of the method of experience, and hence is to be distinguished from the merely reactionary empiricism that led to an uninspired and unintelligent realism on the one hand, or to an emotional sensationalism on the other hand. The unity of knowledge is to be found in its character as a method of experience, and its validity in virtue of its unity and reality. Finally, Bacon is significant for modern educational theory for having conceived of the nature of children from the organic point of view, as comparable to seeds and flowers, in an age antedating the time even when the mind was regarded as a "tabula rasa" for the handwriting of nature, or the soul as a darkened room whose windows could be opened to the light of heaven.

From the point of view of the purpose of this present discussion, Bacon is significant as having emphasised the method of experience as based upon an empirical knowledge of the phenomena of nature. He, therefore, paves the way for a consideration of Descartes, who emphasises the rationalistic interpretation of experience, and of Kant, who seeks in his critical philosophy to relate the two elements of empiricism and rationalism into a unitary process which will fitly represent both sides of the method of experience.

CHAPTER III

DESCARTES

With the early Greeks the main purpose of their search for method was cosmological: they tried to find the principles underlying the universe and to express those principles in terms comprehensible to man. With Bacon the prime object of his investigations was the organisation of science, and the formulation of a method that would be at once universal in its application and certain in its results. With Descartes (1596-1650) the goal of his thought is the discovery, not of the method of a cosmology, not of a universal scientific procedure, but of the method of personal experience. With the Greeks and with Bacon, Descartes is a realist, but he goes beyond either the Greeks or Bacon in his thoroughgoing analysis of the epistemological process. The former had assumed the possibility of a human explanation of the phenomena of the universe; the latter had accepted uncritically the validity of such human intellectual organisations of nature as are made by science; but Descartes took neither of these attitudes as valid *per se*. He questions the very act of experience itself, which is the most intimate knowledge that we have and which underlies and conditions Greek cosmology and Baconian method alike. How can one be certain of the validity of his interpretation of the universe, how can he be sure of the correctness of his scientific results until he has examined the mind which interprets the universe or which seeks to attain true results?

All phases of experience have aspects that are misleading, and Descartes, like Bacon in his consideration of the *Idola*, starts out by resolving to accept nothing on its mere appearance or on the guarantee of tradition. As he says in a letter to Clerselier, "In order to rid one's self of all sorts of prejudices, it is necessary

only to resolve to affirm or deny nothing of all we had formerly affirmed or denied, until this has been examined anew, although we are not on this account prevented from retaining in the memory the whole of the notions themselves." In thus deciding to begin by doubting the evidence of experience, Descartes must not be understood to be making scepticism the end of knowledge. For him doubt is not the end but the beginning of knowledge. It is a means for the attainment of certainty. It is the preliminary condition which involves some method of experience.

The necessity of approaching experience, not in hostile suspicion, but with an openminded suspension of judgment, with an absence of decision until due reason shall have been found, was recognised by Bacon, and is emphasised by Descartes as the starting-point of methodology. The former, in his tract "Of the Interpretation of Nature," had written as follows: "Whoever, *unable to doubt*, and eager to affirm, shall establish principles proved (as he believes), conceded, and manifest, and, according to the universal truth of these, shall reject or receive others as repugnant or favourable; he shall exchange things for words, reason for insanity, the world for a fable. . . He who hath not first, and before all, intimately explored the movements of the human mind, and therein most accurately distinguished the course of knowledge and the seats of error, shall find all things masked and, as it were, enchanted, and, until he undo the charm, shall be unable to interpret." Descartes applies this counsel of Bacon in a very thoroughgoing manner to the method of personal experience as being involved in the wider process of scientific investigation which was Bacon's chief interest.

Descartes therefore starts with immediate experience, and, by the simple investigation and analysis of the process of knowledge itself, seeks to arrive at a true method for the organisation, interpretation, and valuation of experience.

Knowledge and reality, when thus based upon experience, cannot be separated. Epistemology and ontology have the same experiential basis and are genetically identical. This unity gives reality to thought and intelligibility to reality. "I think" and "I exist" both lose meaning and reality when any analysis is made which severs their functional interaction. The essential and necessary relation between the "cogito" and the "sum" is

analogous to that subsequently stated by Kant to exist between concept and percept in epistemological theory.

Descartes, however, must not be understood to interpret the term "thought" in any narrow sense. In *cogitatio* he comprehends "all that is in us of which we are immediately conscious. Thus all the operations of the will, of the intellect, of the imagination and senses are thoughts" (*Resp. ad. sec. Object.*) ; and by the thinking subject he understands "a thing that doubts, understands, conceives, affirms, desires, wills, refuses, that imagines also, and perceives." (Medit. II.) Hence the whole breadth of experience in cross-section is the basis for Descartes' assurance of his existential truth as a reality, and as a reality which is the necessary starting-point and centre for the organisation of the series of realities which go to make up the world of our experience. The existential validity of the thought-process is the starting-point for Descartes' method, as it must be for all subsequent considerations of the method of experience. Reality for Descartes, then, is primarily a reality of *process*, rather than of fact. The function of thought involves the reality of existence, and not *vice versa*. It is this central idea in his philosophy that stamps Descartes as a Rationalist; but he is a Rationalist from the genetic rather than from the teleological standpoint, and that is a distinction that is highly significant when we consider the subsequent development of Rationalism, with its variation in emphasis and its change in point of view.

There are four laws which Descartes undertook to apply in his search for the valid method of experience:

"The *first* was never to accept anything for true which I did not clearly know to be such; that is to say, carefully to avoid precipitancy and prejudice, and to comprise nothing more in my judgment than what was presented to my mind so clearly and distinctly as to exclude all ground of doubt.

"The *second*, to divide each of the difficulties under examination into as many parts as possible, and as might be necessary for its adequate solution.

"The *third*, to conduct my thoughts in such order that, by commencing with objects the easiest and simplest to know, I might ascend by little and little, and, as it were, step by step, to the knowledge of the more complex; assigning in thought a certain order even to those objects which in their own nature do not stand in relation of antecedence and sequence.

"And the *last*, in every case to make enumerations so complete, and reviews so general, that I might be assured that nothing was omitted." (*Discourse on Method*: Part II.)

The first concerns our general attitude towards experience and confirms Descartes' rationalistic insistence upon the character of true knowledge and, consequently, of reality. The second is a canon of the genesis of procedure in the statement of problems, an admirable instance of which is to be found in the *Discourse* itself. The third deals with the development of reality, and involves implications of which Descartes himself was perhaps not fully conscious. The fourth concerns itself with the means necessary to insure accuracy and proof.

Such being the genesis of Descartes' method, its aim was the discovery of truth or *vera cognitio*—but not in such a way as to make truth the slave of an utilitarian science, as Bacon conceived its function to be. Descartes, practical as his researches in mathematics have proved in their outcome, was a thorough rationalist in his method. By this last term he understands "rules certain and easy, such as to prevent anyone who shall have accurately observed them from ever assuming what is false for what is true, and by which, with no effort of mind uselessly consumed, but always by degrees increasing science, a person will arrive at a true knowledge of all those things which he will be capable of knowing." (*Regulae ad Directionem Ingenii*: IV.) It is evident, then, that Descartes is seeking to discover the true method of experience, which will enable him to attain that true knowledge or *vera cognitio* that was alike the end of philosophical thought and of scientific research.

In the process of knowledge, he finds the basis of reality in his own experience. The aim of the process is the discovery of those elements in experience which are true. The method by which such knowledge is obtained consists in the transformation of what is originally an ontological element into an epistemological factor by the application of certain standards or canons regulative of the general experience-process. If carried out consistently and on a large scale, such a method would go farther than the Baconian organisation of science, and would give a rational account of the phenomena of the universe. It would combine science and philosophy by making truth and meaning ultimately the same thing, by showing the organic relation which must exist between the *what* and the *why*.

CHAPTER IV

COMENIUS

A quarter of a century after Francis Bacon was working at his encyclopaedic attempt to cover the whole field of knowledge and of scientific investigation, John Amos Comenius (1592-1670) was seeking to accomplish somewhat the same thing in education. Bacon tried to make science universal in its service to humanity; Comenius aimed at a no less universal service on the part of education. In this movement he was not alone: Wolfgang Ratke (1571-1635), John Valentine Andreeae with his "Reipublicae Christiano-Politicae Descriptio," and John Alsted with his "Encyclopaedia Scientiarum Omnia" (1630), were all exponents of this same pansophic idea.

Previous to the development of the schools of the Jesuits, method in the education offered by the schools of Europe had not been a conscious process. Bacon's "Advancement of Learning" (1605) and his "Novum Organum" (1620), together with some influence from Vives (1492-1540) and Campanella (1568-1639) with their insistence upon scientific method, gave an impulse to educational thought which bore fruit in the work of Comenius. Just as Bacon, in his "New Atlantis" (1617), had dreamed of a "Salomon's House" devoted to the knowledge of causes, to the enlargement of the bounds of human thought, and to the effecting of all things possible, so Comenius in his *Pansophiae praeludium, quo Sapientiae universalis necessitas, possibilitas facilitasque (si ratione certa ineatur) breviter ac dilcuide demonstratur* (1639), expresses his belief in the necessity of a systematisation of human learning, and for the organisation of a Pansophic College, which would be an institution of universal knowledge. The two streams of medieval Humanism and of modern Realism united to form the current of

Sense-Realism in education which flowed through Ratke, Andreae, and Alsted to Comenius, and on through him to Francke, Spener, and Hecker in Germany, and to Newton, Bentley, Spencer, and Huxley in England. However much Comenius may have been inspired by Bacon, and in spite of the fact that he considered the "Instauratio Magna" the most philosophical work of the century, he felt that Bacon "while giving the true key of Nature, did not unlock her secrets, but only showed, by a few examples, how they should be unlocked, and left the rest to future observations to be extended through centuries." In the preface to his "Physics" Comenius further insists upon the necessity of going to Nature rather than to books for our information. The senses are, before all, the great means of knowing. Throughout his "Didactica Magna" (*circ.* 1631) his great teacher is Nature, and her operations determine the character of the educational process which he outlines. This parallelism with the course of Nature constitutes what he calls the *Syncretic method*, by which, together with the analytic and synthetic modes, mankind learns to attain and to comprehend true knowledge.

For Comenius the aim of education summed itself up under three heads: *Eruditio, Virtus seu Mores Honesti, and Religio seu Pietas*. Genetically, the seeds of Knowledge, Virtue, and Religion are implanted in human nature, but not these qualities themselves. Their development is the task of education. The process of education if it is to proceed *compendiose, jucunde, solide*, must follow the guidance of Nature, and must fulfil the following conditions:

1. It must begin early before the mind is corrupted.
2. The mind must be duly prepared to receive it.
3. We must proceed from the general to the particular.
4. And from what is easy to what is more difficult.
5. The pupil must not be overburdened by too many subjects.
6. Progress must be slow in every case.
7. The intellect must be forced to nothing to which its natural bent does not incline it, in accordance with its age and with the right method.
9. Everything must be taught through the medium of the senses.

10. Everything must be taught according to one and the same method. (*Didactica Magna*: XVII.)

Drawing his illustrations always from organic nature, and making the egg and the growing plant his favorite analogies, Comenius summarises his method as follows:

I. Principles of Method

(1) Begin by a careful selection of materials (2) Prepare the materials so that they actually strive to attain the form (3) Develop everything from beginnings which, though insignificant in appearance, possess great potential strength (4) Advance from what is easy to what is more difficult (5) Do not overburden yourself, but be content with a little (6) Do not hurry, but advance slowly (7) Compel nothing to advance that is not driven forward by its own mature strength (8) Assist the operation in every possible manner (9) Only those things should be taught whose application can be easily demonstrated (10) Be uniform in all operations. (*Didactica Magna*: XVII.)

II. Canons of Practice

(1) Only those subjects that are of real use are to be taken in hand (2) These are to be taught without digression or interruption (3) A thorough grounding must precede instruction in detail (4) This grounding must be carefully given (5) All that follows must be based on this grounding, and on nothing else (6) In every subject that consists of several parts, these parts must be linked together as much as possible (7) All that comes later must be based on what has gone before (8) Great stress must be laid on the points of resemblance between cognate subjects (9) All studies must be arranged with reference to the intelligence and memory of the pupils and the nature of the language (10) Knowledge must be fixed in the memory by constant practice. (*Didactica Magna*: XVIII.)

III. The Function of the Senses

(1) The commencement of knowledge must always come from the senses (for the understanding possesses nothing that it has not first derived from the senses).

(2) The truth and certainty of science depend more on the witness of the senses than on anything else, for things impress themselves directly on the senses, but on the understanding only mediately and through the senses. . . . It follows, therefore, that if we wish to implant a true and certain knowledge of things in our pupils, we must take special care that everything can be learned by means of actual observation and sensuous perception.

(3) Since the senses are the most trusty servants of the memory, this method of sensuous perception, if universally applied, will lead to the permanent retention of knowledge that has once been acquired. (*Didactica Magna*: XX.)

There are obviously for Comenius two very significant aspects of the method of education, one dealing with materials, and the other concerned with processes. In his other works, such as the "Janua Linguarum," the "Janua Rerum," and the "Orbis Pictus," Comenius had fully considered the material of education, as well as in the specific chapters of the "Didactica Magna" which deal with the sciences, the arts, languages, and morals. In every case the processes of nature are to be paralleled, so that the theory of education requires as an introductory discipline on the part of the teacher a knowledge of the phenomena of nature. Comenius embodies in an admirable way the first tentative efforts towards the functional conception of education as a phase of human experience.

"Perfect knowledge of an object," he says, when speaking of the method of the sciences, "can only be obtained by acquiring a knowledge of the nature and function of each of its parts." He insists throughout his works upon the importance of knowledge in the experience of the individual, and his interpretation of the method of the learning process involves both the genetic and the teleological points of view. From the former, he emphasises the necessity of teaching all things through their causal relations, and especially through a knowledge of the genetic stages in the process of their development. From the latter point of view Comenius holds that before anything can be truly known the general principles underlying it must be understood. Such knowledge we arrive at by answering the questions *What?* *Of what kind?* and *Why?* The answer to the first gives us the fact or function under consideration; the second gives us the

form or mode; and the third, the efficient or causal force which enables the object to realise its end or function.

Comenius is, therefore, very closely related to Bacon in the universality of the aim which he set before himself. He resembles Descartes in his starting-point, for "putting on one side the discoveries, thoughts, observations, and admonitions of others," he began "to investigate the matter thoughtfully, and to seek out the causes, the principles, the methods, and the objects of the art of teaching." (*Didactica Magna*: Greeting to the Reader.) He finally, by his excellent organisation of the method of education, prepares the way for the critical examination of experience which was the chief work of Immanuel Kant.

CHAPTER V

KANT

The problem of Bacon and of Descartes had been the examination of experience and the discovery of knowledge. The problem that confronted Kant (1724-1804) was no less fundamental in its implications and no less universal in its scope: it involved a criticism of the process of experience itself, with the elimination of error as its negative aspect, and with the determination of the relation of the subjective and the objective elements of knowledge as its positive function.

Kant himself gives philosophical expression to an attitude toward experience which had long been developing. Comenius, Locke, Voltaire, and Rousseau were all to some degree his predecessors in the criticism of the process of knowledge. The influence of Rousseau (*Emile*, 1762) is widely visible in Kant, implicit or explicit, positive or negative, especially in the *Ueber Pädagogik* (lectures, 1776: published, 1803). The problem which Locke had set himself to solve, and which had been worked out in one way by Hume (1711-1776) was given a deeper significance by the treatment which it received from the mind of Kant. Locke, in the beginning of his "Essay" has said: "If, by this inquiry into the nature of the understanding, I can discover the powers thereof, how far they reach, to what things they are in any degree proportionate, and where they fail us, I suppose it may be of use to prevail with the busy mind of man, to be more cautious in meddling with things exceeding its comprehension, to stop when it is at the utmost extent of its tether, and to sit down in a quiet ignorance of things which, upon examination, are found to be beyond the reach of our capacities." It was this same task that Kant set himself to do, and he carried his investigation much further and much deeper than Locke ever contemplated doing.

Among the later writers to whom Kant owed much, both for his point of view and for his method, were Christian Wolff (*Psychologia Empirica*, 1732; *Psychologia Rationalis*, 1734), Leibnitz, Sulzer, Moses Mendelssohn, and Tetens; but, whatever the philosophical materials which Kant found at his disposal, he made an entirely original use of them, and gave them an interpretation which is perhaps the most significant philosophical contribution which the eighteenth century has made to epistemology.

Kant began his critical investigation of the process of experience with the object of finding answers to three questions:

(1) *How can we have knowledge?* The answer to this fundamental problem of Epistemology he gave at length in "The Critique of Pure Reason" (1781).

(2) *How is human conduct to be influenced by man's knowledge?* This problem, which has been the centre of ethical discussion from the time of the Sophist to that of the Pragmatist, Kant considered in "The Critique of Practical Reason" (1788).

(3) *How are knowledge and conduct to be related in the unitary experience of every individual?* This aesthetic and teleological problem Kant attempted to solve in the third of his great critical works, "The Critique of Judgment" (1790).

Kant's main object, throughout his teaching and his writing, was an investigation of the method of knowledge. The particular questions in which the problem presented itself to him for solution were: How far does knowledge depend on the materials of sense experience? How far can reason go toward the discovery of truth? What, ultimately, is the range of *a priori* knowledge? In asking these questions Kant clearly makes the distinction between the genetic and the teleological, between origin and validity, between the fact of experience, which is fortuitous and conditioned, and the judgment of reason, which is necessary and universal. Previous to Kant, the emphasis in philosophical inquiry had been placed on sense perception as the basis of knowledge. The motto of philosophy had been: *Nihil est in intellectu quod non prius fuit in sensu*. Philosophy is experiential, *a posteriori*, and must conform to the nature of the objects known.

From his critical standpoint, which was the necessary development of the combination of Naturalism and of Rationalism in philosophic thought, Kant gave to the process of experience a

new interpretation, by emphasising the function of Reason as giving validity to the impression of the senses. Instead of making thought conform to the objects, Kant believed that objects must conform to thought, and that consequently *a priori* judgments were possible. It must be borne in mind at this point, however, that Kant really takes the term *object* in two different senses: (1) as a thing existing by itself outside of the mind and independent of it; (2) as an object of perception existing in and for the mind. It is this double significance of object that makes it so difficult to relate in a consistent manner the doctrine of the "ding an sich" to the rest of Kant's epistemological system.

It is to be noted, too, that Kant questions the truth of facts rather than the truth of processes, which is in reality just as much involved in any thorough-going theory of knowledge. There is the danger of attributing reality to objects of sense-perception and not to concepts themselves. Ideas have reality; and Kant does not always make clear the relation of ideas, things-in-themselves, and the phenomena of sense-experience.

In his detailed treatment of the process and the objects of knowledge, Kant arbitrarily makes a distinction between "two stems of human knowledge, which perhaps spring from a common but to us unknown root, namely *sensibility* and *understanding*":

- (1) *Sensibility*—receptivity for impressions.
- (2) *Understanding*—spontaneity of conception.

The necessity of the interaction of these two is emphasised: "Neither conceptions without a perception in some way corresponding to them, nor perception without conceptions can yield any knowledge . . . without sensibility no object would be given to us, and without understanding no object would be thought. Thoughts without content are empty, perceptions without conceptions are blind . . . only by their union can knowledge arise."

With these two aspects of knowledge realised, the problem still remains as to the possibility of *a priori* synthetic judgments. The objects of knowledge will be those which conform to this dual nature of the mind: they will be those aspects of reality which become phenomena of experience by conforming to the necessities of man's perceptual and conceptual mind. The correspon-

dence between the course of nature and the mind of man is therefore regarded by Kant from the point of view of the limitations of a human theory of knowledge, rather than from the standpoint of the experiential universality and potentiality which the world offers. The problems of *a priori* judgments in their relation to the sensibility are treated in the "Transcendental Aesthetic"; and in their relation to the understanding are considered in the Transcendental Analytic."

As a summary of the preceding consideration and as a transition to his theory of education and the implications involved in his epistemology, the following table, prepared by Kant himself, is suggestive:

Mental powers	Higher faculties of knowledge	A priori principles	Products
Knowledge.....	Understanding..	Conformity to law....	Nature
Pleasure and Pain	Judgment	Conformity to purpose	Art
Action.....	Reason.....	Obligation.....	Morals

Kant's educational theory is set forth in an abbreviated form in lecture notes *Ueber Pädagogik*, which are not always organically related to the epistemological theory set forth in the three *Critiques*. Believing that man can truly become man only through education, and that he is ultimately only what education makes him, Kant divides the process into two chief aspects:

(1) *Physical*, in which the main emphasis is placed upon the cultivation of the individual, upon the proper nurture of his body (cp. Rousseau), upon discipline (*Zucht*), training and culture (*Bildung*).

The idea of education, as a process, depends on the realisation that perfection of human development has not yet been attained. But there are in man the undeveloped germs which, when encouraged in the proper manner, will grow until man fulfils his destiny. In this process of development man cannot become a true individual except as a member of society, and in attaining the end of education the co-operation of the whole human race

is required. Education as a theory must be based upon the practice of many generations.

(2) *Moral*, in which the aim is the development of character, through the realisation of a sense of duty within and a recognition of law without. The purpose of this phase of education is conscientious obedience to a moral law whose universal necessity to human development is clearly realised. Since the ultimate aim of the process of education is the formation of character, and since character involves the two elements of recognised purpose and determined will, it follows that there must be developed in the child the realisation of some method by which he may relate the ideal of his activity and the various steps involved in the physical realisation of that ideal. This process of moral training (*Civilisierung*) involves the problem of the freedom of the will and the function of restraint, the necessity of a social medium for moral self-expression, and finally the realisation of true liberty only through restraint, of freedom through the law.

The process of education as a phase of experience, has two aspects: in the first place, it is to a certain extent mechanical and experimental in character; and, in the second place, it involves judgment, and the organisation of experience upon some sure principle of procedure. The negative aspect, then, involves the discipline of the physical; the positive includes acquisition of information and instruction, the development of discretion and refinement, and the realisation of one's inner moral nature.

With regard to the actual method of teaching, Kant makes perfectly clear the relation that ought to exist between Theory and Practice. "In teaching children we must seek insensibly to unite knowledge with the carrying out of that knowledge into practice." (*U. P.* 70.); and "the best way of cultivating the mental faculties is to do ourselves all that we wish to accomplish. . . . The best way to understand is to do." (*U. P.* 75.) Again, in his *Announcement of the Arrangement of his Lectures for the Winter Semester 1765-6*, Kant further emphasises the functional character of education by saying that the student is "to learn, not thoughts but thinking"; and in the same article he sums up the whole duty of the teacher as follows: "Since the natural progress of human knowledge is this, that the understanding is first developed by arriving, through experience, at intuitive judg-

ments, and, through these at concepts, that thereupon these concepts are recognised in relation to their grounds and results by reason, and finally in a well-arranged whole by means of science, so instruction must go the same way. Hence a teacher is expected to make of his hearer first an *intelligent*, then a *reasonable*, and finally a *learned man*."

To sum up the chief implications which Kant's writings have for the problem of method, they may be stated briefly as follows:

(1) His analysis of the character and nature of human knowledge, though it is carried on rather from the structural point of view, does involve a consideration of the *method* of knowledge as an essential phase. Knowledge must be related to virtuous action; Theory and Practice are interrelated phases of experience.

(2) Kant emphasises the fundamental creative power of the human mind. Method is a phase of an evolutionary experience. Education is genetic only if it is at the same time teleological. Self-activity is the fundamental method of education. (cp. Froebel.)

CHAPTER VI

THE IDEA OF DEVELOPMENT

When we think of Evolution, and when we use that term to describe a process, we must be very careful that there does not cling to it in our minds some little vestige of that early garment of words with which the idea was clothed in its infancy. When we speak of Evolution, vague ideas, for instance, of design, of survival of the fittest, of nature's carelessness of the single life, etc., may lurk behind our thoughts and quite unconsciously to ourselves prevent us from realising the full import of the term.

There is little danger of speaking as if there were no such power as that of personality, which forces its own way whether we will or not, which breaks the strongest custom as freezing water bursts the hardest iron, which defies mere ordinary convention, ignores those subjective barriers of caste which do so much to retard conscious evolution, and which, with the merest clay at all men's feet, and the words in all men's mouths, opens the eyes of all future generations.

With institutions this fact is also true, and we find that conceptions or conditions only incidental in their origin still survive and come from sheer age to be considered as essential parts of an institution, when in reality they are no more than the accidental concomitants of its genesis. So that we are not surprised to find the idea of force still lurking in our conception of the state, the belief in future reward and punishment still underlying many theologies, and to find the weeds of tradition choking the educational field.

With terms, too, or ideas we find that some of the denotation of the term when first used has, through careless thinking or inaccurate usage, crept into the connotation and has to a certain degree vitiated subsequent thought and has sometimes given a

twist to men's investigation, often turning it off from the highway of thought just at the critical turning of the roads. This curious foiling of humanity just as it is about to discover one of the secrets of nature is illustrated throughout the entire philosophical and scientific history of mankind. It is this very misconception of ontological significance that in the last century caused the Darwinian interpretation of Evolution to be for so long held in ill-repute by so many truly religious people. These persons had an anthropomorphic conception of what was to be understood by creation or the origin of things, which they had imagined by looking at their own process of mechanical construction as they made a table or a book, and then they had magnified this power beyond their own imagination, adding thereto the conception of something coming out of nothing. From this magnified activity of human beings they then arrived at the metaphysical impossibility of having created a God whom they made do thus and so. And yet, just because human nature can never go wrong, this conception was a wonderfully grand one and was in some respects a permanently true conception.

It is small wonder then that when the conception of Evolution had so grown throughout the ages and had so developed in the quietness of men's minds that when it forced itself to definite expression in the nineteenth century, it should be so misconstrued and charged with all the heresies that put to death Socrates and Christ and philosophers and scientists without number. There is a curious commentary upon the history of man in the fact that those very ideas for which men once were killed and crucified and burned at the stake have in turn in later ages put to death those very ideas that were the executioners of the early martyrs.

The most casual examination of our experience or of the order of nature indicates a relation to which we have given the name Causation, and which consists in the necessary relation of two phenomena. The old conception of Causation involved temporal considerations such as the priority of the cause, with its attendant logical fallacy *post hoc ergo propter hoc*. Subsequent philosophical discussion of the subject was thus confused by the interpretation of a merely formal element as an essential one.

From the point of view of Evolution, there are no specific acts of causation, no fact of creation in time and space: such views

are saturated with the merely mechanical and static conceptions of the universe engendered by an anthropomorphic design.

Evolution is another term for "universal" experience—it is *Causation in activity*. It is the active manifestation in the world of what we mean when we speak of Causation. Causation is a principle, and it can therefore have no reality unless it is regarded as a function. We cannot get outside it and look upon it with categories of the mind. It is an essential part of the constitution of the universe, and we can no more tell why it is or explain how it operates than we can tell why we speak of matter and of mind as existing, or say how they operate (ontologically) upon each other.

Causation is the method by which a universe of powers, potentialities and promises realises itself. Causation is the potentiality, the *dynamis* "energising," actualising itself, making reality; and it would be far better to use the word "cause" in its old restricted logical sense and to carry over this meaning of universal causation into our idea of the process of Evolution, where it properly belongs, and with which, metaphysically, it is synonymous.

Besides, this is a position to which the consistent thinker is ultimately forced, if he accept Evolution even in its baldest statement. For, if we say that one thing "causes" another, or that retrospectively one thing is due to another, how does it happen that from one thing comes another of a different kind? It is useless to argue, as has so often been done, that a thing produces an effect like itself. We know that this is not so. The heat is *not* like fire; the plant is *not* like seed; the child is *not* like his parents. Nor again, strictly speaking, does the fire *cause* the heat; or the seed, the plant; or the parents, the child. Fire, plant, child are the realisation, the actualisation of fire *as fire*, of seed *as seed*, of parents *as parents*. They are *part of the conception* of fire, seed, and parent. They are the potentiality of combustible material, of vegetable cells, and of human beings made manifest, expressed, realised, evolved. We cannot have fire without involving, both in idea and in actuality, heat; nor can we really *mean* seed without seeing in our mind's eye its full fruition as plant; nor does the relation of parents mean aught save as it is realised in the existence of children. In this conception of the

meaning of terms we are able to bring together Spinoza's way of looking at things *sub specie aeternitatis* with the modern functional theory of concept.

We have here, too, a suggestion of the nature of continuity and of the true nature of identity. For, given the proper environmental conditions, or the proper experiential basis, these relations are permanent: they have in them the power of continuance, of reproduction. Even the fire is capable of raising adjacent combustible material to the point of combustion and of thus prolonging its characteristic activity. The seed, when it becomes a plant, has in itself the power of bringing forth twenty or a hundred-fold; and man has not only the power of reproducing himself on the purely physical level, but also of making his thought and his spirit live in other minds and spirits, so that great fruitful ideas are sown throughout the ages and never die. From this point of view our schools and libraries are great store-houses of seed, reservoirs of potentiality, which keep the process of spiritual evolution at its highest level. This is where the significance of institutions in the evolution of the human race is best realised.

Again the nature of the thing, its true end, is its development, its evolution, its self-realisation in the highest *form* to which its potentiality is capable of reaching; and its nature also involves the handing on of its power with the germ of greater potentiality due to the impetus which its own relative higher development is enabled to give the form that succeeds it. This can be seen illustrated in the life of the individual, parent and child, teacher and pupil; or in society in the betterment of conditions; or in thought in the development of ideals.

So that the whole machinery of the universe is machinery only to the mechanically-minded man. To the evolutionist it is a vast, an infinitely vast, growing living organism. It is not pantheistic, not panpsychic, both of which interpret the higher by the lower; but pan-organic, the activity of God, the realisation through many ways and divers forms of what is ultimately Truth and permanently Goodness, or Godness. For there is no *a priori* necessity which compels us to liken the absolute Reality to any living creature or to any force in nature, nor is there any moral compulsion that forces us to say that He is in his manifestations

a perfect Being. That would be to close the circle and system and to leave no place for evolution, no room for causation, no scope for Will.

In so far as it deals with the facts of nature; Evolution must be included under what are natural laws, though from the broadest point of view all laws are natural laws. The "supernatural" is merely descriptive of nature that has not yet been organised according to the forms of human intelligence. But the term is essentially relative, and involves a wider glance at the facts of nature than men can compass. The supernatural is but the natural writ too large for men to take in its significance at a glance. In the narrower sense, however, the term Evolution refers to those distinct uniformities and necessities of organic activity which can be realised by the mind and spirit of man. If it is to be a law of Nature, Evolution must be universally valid as the description of a general process of development. In other words it must not only accord with all the facts of the phenomena and be contrary to none, but it must also be subjectively valid, in the sense of being intelligible and rational to the mind of men. It does not follow that every fact in nature will immediately be seen and thought of in evolutionary terms, but it does involve a certain breadth of observation and of experiment with the result that no negative instance can be discovered. The various conceptions of Evolution that have up to this time been worked out in extensive detail have in one respect or another proved unsatisfactory either because the scope of observation has not been sufficiently wide, or because some personal bias has entered in as a disturbing factor. Yet this individual element that impairs the validity and renders uncertain the final form of particular interpretations of Evolution in no way alters the fundamental character of the principle itself. Our attitude to the world does not affect its constitution except from the point of view of intellectual reorganisation and voluntary reaction to situations. The Copernican revolution in astronomy furnished the basis for a generalisation regarding philosophical attitude which men have been rather slow to make. The fact that Evolution in its broadest conception is a constitutive principle of our thought bears a close relation to the scientific postulate of the objective uniformity of nature, and brings it into relation with

the principle of Causation. The old method of science had for its goal the collection and classification of an infinite number of particular phenomena *per enumerationem simplicem*, their subsumption under more or less general concepts, and the consequent deduction of the validity of particulars. Such activity has its value as a necessary step in scientific procedure, but it is neither the beginning nor the end of scientific or philosophical investigation. The modern philosophy of science goes farther, and attempts to relate these various classifications of concepts in a system of laws based upon the general principle of Causation, which is regarded as a necessary condition of existence and a criterion of the possibility of human experience. Hitherto the conception of Causation has been worked out with greatest definiteness and with mathematical accuracy in the mechanical sciences, but it is no less a fundamental principle in Biology, Psychology, Sociology, Education, and Ethics, though in each of these the particular form in which the principle manifests itself varies. This much may be postulated without involving the mechanism of a fatalistic interpretation of experience, nor limiting the definite sphere within which the alternatives of human choice must lie, while at the same time preserving that freedom of the social personality which Idealism demands. Evolution from one point of view receives philosophical justification in that it is one manifestation of causality, and is therefore a necessary condition of experience. It scarcely admits of exact expression as a mathematical formula because, though the antecedent and consequent conditions can perhaps be represented quantitatively with more or less adequacy, it is impossible to express their actual relation and at the same time include all the conditions of variation in the equation.

Since, therefore, Evolution has a philosophical basis and justification as a condition of the possibility of experience, its significance as a subjective regulative principle has an obvious importance for education. The principle is brought still more into relation with the general aim of our philosophy when we regard it as a method of bringing inherent order out of apparent chaos, for that is what philosophers in every age have been trying to accomplish from time immemorial, searching in a veritable intellectual Slough of Despond for a unity in diversity, the one in the many, or the universal in a bewildering muddle of particulars.

The contribution to the problem of Philosophy which is made by Evolution results in a readjustment of the point of view, by making the relation of subject and object *organic* as well as logical. It thus gives life to Epistemology and epistemological significance to life. It also takes the ground from under the feet of the materialist and helps to establish the idealist's position, for the materialist can never describe his matter in terms that do not necessarily imply mind, or which do not result in the belief in an actual dualism in Nature, without explaining how two such disparate elements as the materialistic position presupposes could ever have come into relation. Because our experience is physical our world cannot be dualistic. The thing known and the method of knowledge may be different, but the experience *qua* experience is unitary.

Evolution is, therefore, not only not opposed to a Theory of Knowledge but it adds to it a new element of great epistemological significance, for instead of making knowledge a more or less stable concrete acquisition and emphasising its terminal aspects as "knower" and "known," Evolution lays stress on the functional aspect of Knowledge *as an activity*. It no longer tries, as before, to reconcile static elements of objective experience with the recognised dynamic character of the mental process which is taking place in the mind. Neither is static, and when the epistemological significance of Evolution is realised, the possibility of an absolutely dualistic conception of the process of knowledge is reduced to a minimum and is regarded only as a convenient relative logical distinction, in which the elements exist only when, and for as long as, the logical opposition is consciously made.

This must not be taken to mean that there is no need for emphasising the terminal aspects of the process of Evolution, for it is obvious enough that the distinction between the individual and his environment, or between the agent and his situation, corresponds to the logical opposition of self and not-self or subject and object. But in looking at it from the evolutionary point of view, it is not the opposition that is emphasised, but the mutual interdependence and the logical and organic unity of the elements in the one process. Philosophies have at various times laid stress upon one or the other of these two, and the character of their

Theory of Knowledge has depended upon which of the elements has been considered to be active and which passive. The oriental type of mind exalted the activity of the not-self, the object, the environment; the occidental has emphasised and still emphasises the activity of the self, the subject, the individual: a view which found its completest expression in the synthetic unity of apperception which lies at the basis of the Kantian philosophy. Evolution seems to afford Epistemology the necessary two elements which logical analysis has so widely separated; and this fundamental relation between these two mutually necessary factors is further strengthened when considered from the point of view of Idealism.

It is an important argument in favor of the validity of the evolutionary theory that it not only falls in so well with the general trend of epistemological inquiry, but that it adds to it much more fundamental significance from the theoretical point of view, as well as at the same time broadening its relations on the practical side.

One thing more must be borne in mind: from the philosophical standpoint. Evolution cannot be interpreted otherwise than teleologically. Evolution is teleology made manifest in the cosmic process. It is because some thinkers fail to take this view of evolution that they fail to justify the ways of God to man and beast. In every sense of the term, it is a narrow interpretation of teleology which confines itself to those series of phenomena which we interpret anthropomorphically as "the struggle for existence," or which goes farther only to find no God because it imagines that it can find no freedom. It is the old fallacy of jumping at conclusions in the dark, and the old desire to draw the whole curve somehow, even though its outline be drawn half false, or drawn before its direction and sweep are fully realised in part.

It is here maintained, on the contrary, that Evolution cannot be conceived without teleology, for Evolution is considered as a rational process of cosmical organisation. Teleology gives in human terms the interpretation of this process, and it therefore complements the contribution made by science to human knowledge and belief, by placing these scientific facts in their necessary causal relations to one another, and by showing their organic

relationship as parts of a rational scheme of development, as parts in the operation of Law.

There follows naturally from this position the conception of teleology as immanent in the universe. The world is regarded as the realisation of a creative Intelligence. From this point of view of personal idealism, the world exists for us in so far as we realise in it, and through it, the rational and beneficent Intelligence or Spirituality which pervades it and is its essence, without which there would be nothing to be perceived, no objects to be realised, and no one to realise them. From the complementary point of view, the universe must be regarded from the standpoint of divine Idealism—*sub specie aeternitatis*, as Spinoza would say; and this involves a belief in what may be called, for want of more explicit terms, a sort of spiritually universal Theism, pervading and making real all things in heaven and earth. This does not imply an objective anthropomorphism, nor does it confine the nature of the Creator within the limits of created things. It is what we mean when we speak of the world as a realisation of creative Intelligence in the widest sense—it is the conceivable absolute view of Nature which finds a partial reflection or interpretation in the idealistic reconstruction of the human intelligence, “and perfection, no more and no less, in the kind I imagined, full-fronts me, and God is seen God in the star, in the stone, in the flesh, in the soul and the clod.”

From this wider point of view there can be no contradictions in Nature and no antagonisms that do not ultimately resolve themselves into illusions of the human standpoint—divine ideas that in the cavern of the mind seem dark and distorted. Human thought is possible only through contrasts, and positive advance takes place only through negation; opposites become, through the operation of the mind, reconciled in a higher unity which for the moment appears to be ultimate, but it is subsequently realised to be but a part of a unity of greater extension; and so the process continues and can end only with the ultimate realisation of the knowledge of good and evil. The very fact of relativity involves negation in the reconciliation of the elements involved, but negation for the sake of unity. Here we find the philosophical justification for the Greek view that Knowledge involves Virtue. In fact, problems of Epistemology and of Ethics fuse when their ideal becomes an *amor intellectualis Dei*.

CHAPTER VII

THE INTERPRETATION OF EXPERIENCE

I. EXPERIENCE

The most naive and unphilosophical of persons makes certain distinctions in experience, whether he gives names to them or not. He knows that when he is feeling satisfied or sad he is having an experience that is different in some way or another from that which occupies his attention when he is thinking how to solve some question that puzzles him; and he knows that to imagine what might happen in certain circumstances is quite different from wishing that he had acted otherwise than he did yesterday. The average individual habitually makes these distinctions and is apt to regard thinking and feeling and wishing and imagining, quite as distinct from one another as tea and sugar and bread and butter are, all the former being kinds of experience much in the same way that all the latter are kinds of food.

Yet neither genetically nor ultimately is this analysis of experience into hard and fast and sharply separated kinds justified. James has reminded us—and our own memories corroborate him—that the child's experience is a blooming buzzing confusion, in which there is such a wealth of material, such a profusion of possibilities of new and intensely interesting experiences that even the great and blatant distinction between one's self and the things about one is not made. This closeness to nature, this unification with the things of experience is one of the first of those beauties of the innocence of childhood to succumb to the dangers of a little knowledge. It is only as one passes through the stage of the sharp distinction between the self and the world, and conscientiously thinks away this dualism that seems a necessary

part of our intellectual development, that he becomes again like a little child, at one with the world. No longer self-conscious in the adolescent discovery of the sharp contrasts in experience and yet self-unconscious as the child who has not yet discovered himself, and has not defined his distinctions, the individual in this third and highest stage again finds in his experience a unity, having transcended the seeming distinctions between self and the world. Having become self-forgetful, he loses himself in experience only to find that he and his experience are part of the same thing. What he is, is experience in some form or other, and his experience is surely some part of him. He cannot help being part of all he has met. Were he otherwise, he would be nothing.

The distinctions to be made in experience, then, are not cross-section divisions into faculties, or even into ultimately distinguishable activities such as thought, and feeling and will, but they are to be considered rather from the genetic point of view and to be regarded as necessary stages in the development from juvenile and naive self-unconsciousness, through a period of intellectual and moral tension in which distinctions and oppositions are paramount, self against the world, good against evil, desire against conscience, to a third period of conviction and character in which the nature of one's experience, like one's body, becomes unified, fixed and stable in form and function.

In the process of individual development these three stages discerned by philosophical analysis are not sharply distinguished either by their content or by the particular time at which they predominate. The reason is that we cannot say that all persons who think thus and so are in the unconscious stage, or in the self-conscious stage, or in the last and highest stage of unity with self. For, in the first place, the same stimulus to experience may cause in individuals reactions that have nothing in common in the nature of their content, so that in the same rock the savage may worship a fetich, the explorer may see a convenient shelter against the inclemency of the weather, and the geologist, a long sought specimen adding one lost link in the chain of proof of a scientific hypothesis. And again, in the second place, the same state of mind or the same experience may be caused by very different stimuli, and may be seen by considering the variety of means adopted in the different religions of the world to attain

perhaps unconsciously in the student of philosophy, but accepted as quite obvious and necessary by the so-called common sense man.

Let us take first of all this latter outlook upon the world, because it is one that appeals to the great majority of people in their everyday life, and because it has formed a kind of starting-point for many philosophers who have sought to do away with the separation, so blatant and obvious, between the man who thinks and works, and the things he thinks about or works with. Then we shall be in a better position to consider the manner in which the philosopher has attacked the problem and to see that, after all, he has in many cases only refined it, or at best cleared away certain difficulties and has gone a few steps toward the result, but has still left the dualism existent in some part of his experience, for Dualism is the Hydra of philosophy.

The average person of common sense, who is not deaf or blind, looks upon the world as something solid and enduring, shot through with varying colours and full of sound, and capable of more or less permanent modification by creatures like himself: this he knows for he has daily and hourly proof of it. The paper upon which he writes was white but is through his agency rapidly becoming scrawled over with irregular black marks; the sunlight striking through the window creeps across the floor; the horses passing in the street resound upon the hard pavement, giving one a comfortable sense of solidity and of permanence; and so on, from breakfast to bedtime, the world is there, in some way stable and enduring in spite of the changing seasons and the vicissitudes of men.

It is through this sense of the existence of the world as he knows it that the average man is led unconsciously into the mazes of Dualism. He exists because he thinks and feels and acts; the street exists because he sees it, hears its noises, and if need be he can go out and walk upon the pavement or test the consistency of its surface; and yonder hill exists because he sees it, and knows that he has but to go and walk thither for his feet to feel its upward slope. But the other side—does it exist? What ground has the common-sense man for affirming its existence? Have we here a subtle form of Bacon's *per enumerationem simplicem*? An absurd question, thinks he: a hill must have an-

other side. But let us suppose that the hill-top that we see yonder be regarded with childish naiveté as the end—that there is just jagged skyline and no more. Logically that is quite conceivable; and our actual experience in this case has told us nothing that will contradict this supposition. To that, however, he will not agree. Every hill he has yet climbed has been something more substantial than stage property, kept standing by a flimsy framework of cheap wood. And so he climbs this hill and, it may be, finds that he was right—that there is another side, and having thus by an unconscious logical fallacy vindicated his pragmatic attitude, he unconsciously confirms himself in his dualism.

But suppose, through a variation in the course of nature that proves a happy chance for the sake of argument, that the other side of the hill does not slope downward at the expected or accustomed angle, but leads onward to a level plateau, as sometimes happens. Does that alter the common-sense attitude toward the hill? Can Pizarro be *sure* that there will be a Pacific Ocean beyond the hills? This discovery that the other side of the hill is not a side after all involves some modification in our attitude to hills. It involves some reconstruction in our concept. We are no longer entitled to say that the hill has another side, but, in view of the fact that it may either slope downward, or continue on a level, or slope upward to higher hills hidden from our sight, we must confine our statement to saying that there is "something" beyond. What that may be, what its quality or kind is we know not; all we know is that it *exists*; and if we wish to know more about it than the mere fact of its existence, we must either go and find out ourselves, or else discover its character from some one who has been there and seen for himself.

Bearing in mind, then, this fact of *existence*, let us see whether it holds *true* in other instances. The region beyond the hill *exists*, and its existence is easy of proof; something beyond the sea existed for Columbus, but colour, shape, and content could only be imperfectly imagined through analogy before the first Spaniard set foot upon the shore. It was only then that this unknown something became defined, had life breathed into it, and took on colour and character. To go farther afield, and to take an instance where our physical limitations prevent us from adding this varied content to the hollow form of existence, let

us take the case of the other side of the moon, which no one has ever seen. As in the case of the other side of the hill before the common-sense man had stood on its crest and seen what lay beyond him; as in the case of the undiscovered America while the Santa Maria was still out of sight of land,—so here in the case of the moon, who throughout the centuries has never turned her back upon the earth, we have the simplest instance of something of which we can think, and yet of which we can say nothing else than that it exists, unless we go beyond our immediate experience and take things on faith, and that is an attitude of which the common-sense man will have none.

Yet—and here comes the crux of the question—*how much reality had it for us?* Is the mere fact of existence sufficient to make it a real part of our experience and of our activity? What must things possess besides mere existence to be of value in human life and in the development of the individual's experience? It follows from this that there must be three levels of existence, which may be characterised as follows:

(1) *Mere Existence*

Here we have the simplest form of reality in relation to human experience. Existence is a category of the possibility of experience. It is a significant Form of reality in which the mind or emotions of man must discover the hitherto insignificant content. Reality cannot be conceived of as otherwise than existing either in a world of matter or in a world of ideas. To say that a thing is non-existent is to destroy its reality and render it meaningless except as the negation of a logical concept. Existence therefore means reality for some consciousness; and in practical experience the mind never rests content with this colourless ineffectual form of reality, but continually strives through its activity to pass onward to the next higher stage. Existence involves some sort of material *λόγος*, as the basis of human experience. This level necessarily leads to the higher levels of reality.

(2) *Potentiality*

The mind soon discovers that if various phases of reality are to form either a stimulus or a basis for its activity, they must possess other qualities besides that of mere existence. The fact of existence, being a necessary condition of all that comes within

human experience, is taken for granted and is not consciously realised through a process of logical analysis. Everywhere everything seems to possess special qualities or characteristics which differentiate it from everything else. The animals and flowers are named, classes are formed, thoughts are organised into ideas. This is a stage of differentiation, a process of individualisation. Instead of the mere dead level of existence, in the experience of each individual certain parts seem to rise to actuality, certain spots seem to become foci of meaning, centres of potentiality or power. When represented in the theory of the concept and the definition, this idea of potentiality involves the use of language or symbols which express the idea in terms of activity, and therefore as a basis for its complete realisation or actualisation as indicated in the third stage. This conception is the *functional interpretation of the concept*. The qualities which in this process of experience the mind discovers in nature are in reality *modes of existence*, categories of experience, which the mind seeks to organise into some sort of a working system for its own use. Science is based upon the systematisation of the potentialities of matter, and it expresses its definitions in the form of equations and principles. This conception of particular human experience as conditioned by the qualities of things as modes of existence is akin to Spinoza's *idea of natura naturata*. It is also based upon Aristotle's *conception of Δύναμις*.

(3) *Activity*

In this stage we have, so to speak, the fruition of the stage of Potentiality. Here we have Function in operation; *ἐνέργεια* in the process of actualising the *δύναμις* latent in varying degree in the *Ὥλη*. Here the divine energy is not passive but active, and manifests itself as *natura naturans*. It involves literally speaking, the *realisation of God*, that is, the manifestation of his activity as an energy which first of all underlies all things and gives them existence; and secondly differentiates itself into a manifold of particular potentialities capable of functioning in harmony; and finally the actualisation of these existent potentialities in a universe of mutually interacting partial manifestations of divine energy, all striving towards a completer self-realisation.

What goes on in the macrocosm of the universe is paralleled in the process of development of:

(a) *The Individual*

First, there is the passive stage of mere existence, in which the child, scarcely yet an individual, is played upon by the active forces in his environment. Then, in the second place, he begins to realise his powers and potentialities and certain more or less obvious qualities and potentialities in the objects he is growing to know. Finally, he realises that there is some connection between himself and things, and that these objective powers and his own personal capacities can be made to work together, and through a process of interaction to develop one another to a level that otherwise could not be attained through isolated activity.

(b) *Society*

In the first stage there is an undifferentiated level of mere existence, when social functions are not apparent or are present only in embryonic form. In the second place, there is differentiation of function and the growing consciousness of certain fundamental types of activity or *potentialities of corporate experience*. In the third stage these potentialities are raised to the level of an idea and have a twofold function: (1) they give social form and control to individual experience; (2) they give wider content to the narrower individual course of development. Hence, in this third stage, we have the individual's activity and the social idea in synthesis through functional interaction.

The prevalent tendency on the part of teachers to be imposed upon by the external factors in experience amounts almost to a fallacy of the material, and leads us to ask ourselves, in a reactionary mood, "*What do we do when we think?*" It is a question that teachers need to ask themselves, and the more one considers its possible answer the more convinced does one become not only of the practical necessity of such an interrogation of experience, but also of its numerous and fundamental implications in any philosophical education. There are perhaps two great reasons why we should consider the problem that is suggested by the question, "*What do we do when we think?*" In the first place, we are apt to over-emphasise the significance and

finality of environment as a something or a system existing apart from us and operating on a fundamentally different basis.

There is a tendency on the part of the average human being, owing largely to the manner in which the sense of sight dominates his thought, to regard the persons and things he sees as, in a sense, walking into his mind or swimming into his ken in quite a material way and with apparently no volition on his part. The man to whom the colour and form of the world make merely perceptual appeal and who has no thoughtful under-current to his experience, is forgetful of that selective control which interest and the whole background of his previous experience unconsciously exert upon the activity of even the sense at every moment of his life. In order to counteract the dualism implied in this common attitude to environment and the prevalent conception of environment as a unity in itself, there is no surer discipline than that of an earnest and sincere effort to discover what we do when we think. In other words, what we have to do is try to realise just how the sights and sound and things that make up the mobile environment of each day's experience act upon us and we upon them: how, indeed, they are actually part of our thinking and feeling, and are not so many sights and sounds passing by us, as it were, in a more or less orderly and not always interesting procession to which we stand as onlookers. From the point of view of the child who is being educated this attitude of ours to the world of experience has its very significant implication for both theory and practice. These will be considered in greater detail later, but it will be realised even from the outset that from one point of view the child and his environment are to be regarded as two separate entities and that various aspects of a classified environment are to be gotten into his mind by a process of formal instruction—that the form is given by the teacher to the material and that the process of education consists in the assimilation of this already organised system of interpretation of the world. From the other point of view and the one that is here advocated, the child's activity is made the motive force in education; the world is regarded as a universe of possibilities out of which in the process of human and social development certain phases have been selected as the most valuable types of activity; and the process of education is the development of

the individual child's personality through the method of gradually giving form to it in accordance with these fundamental types of social experience, in such a way as to make the child a free personality, and at the same time an active and responsible member of the social whole. There is then this more or less external or objective attitude to the world of experience implied in the former method of considering the question as to what we do when we think; but there is also a corresponding subjective side, which is equally fundamental in its implications for educational thought. The fact that we ask the questions at all really suggests this new point of view. Hitherto psychology and educational method have contented themselves chiefly with the analysis of the objects of thought and the materials of instruction, or with the mental processes themselves. As a result of this activity we have been given a classification of the subject-matter of the various elements that constitute the program of the course of study, and a description of the various functions of the mind, such as perception, memory, association, etc. In other words, the attempt has been made to describe our environment and our minds from two different points of view, one objective and one subjective, and there has been this dualism more or less apparent in educational method as a direct result. This is partly due to a failure to work out the psychology of the various educational materials; and partly to the character of the psychological method employed by the investigators, who collect and arrange facts without having fully become conscious of the standards which underlie their selection, and without being conscious of the philosophical implications which underlie all definite formulations of phases of experience and which alone can give them practical value.

What then *do* we do when we think? Does or does not the question involve more than a mere analysis of mind and material,—of the individual and his environment? Can it be answered by considering both elements as interacting factors in a process of development?

The most satisfactory way of answering the question is actually to put it to the test: to take our own experience and see whether it will not yield its secret when we ask the question in the right way. For we currently speak of the world as being full of secrets. The scientist is said to be engaged in discover-

ing what we call the secrets of nature ; the physician is daily face to face with the mysteries of the human body, and yet the teacher, who is not dealing with mere stocks and stones, nor yet with the physical body, but with the intangible intellectual and spiritual nature of the child, is so seldom conscious of the fact that he is face to face with a greater mystery than those of either scientist or the physician—with the mystery of human personality—which is one that will yield itself only to the same patient, conscientious, and devoted self-sacrifice that is cheerfully given to the discovery of the secrets of the inorganic and the organic realms of nature.

If, then, we take our experience as it is, here and now, we find that it includes far more than appears on the surface—more than actual paper and pen and thoughts that constitute the superficial activity of the present moment. There is, as it were, a psychic background, a margin of consciousness, that is crowded with a moving throng of ideas and feelings, some of them past experiences, others anticipations, hopes, beliefs, attitudes to future experiences ; yet all, past, present, and future, are part of my thinking and feeling, are part of me, of my experience, and all take part in the conscious or unconscious modification and regulation of the particular activity of the moment.

There is then a twofold unity in my experience : there is on the one hand this more or less external unity of activity in which all that I do, express, or actually control and take part in, is the deed and the expression of my own individual activity ; and there is on the other hand that inner psychic intellectual or spiritual unity of thought which is but another aspect of the same unitary experience.

Space and Time are two concepts whose regulative control of our activities has been somewhat misrepresented since the time of Kant, owing to a proper idealistic interpretation of them as forms of experience. Space and Time are not to be regarded as self-existent entities apart from human experience but rather as regulative phases of the thought-process, and of the method of our experience. The failure to regard them as merely regulative and not constitutive of experience has been to some extent responsible for the conception of our mental life as consisting of the actual perceptual content (Space) of the mind at a given moment (Time) and not as a psychic continuum stretching back

into the past and forward into the future, integrating the past in the present experience, and shaping future aims and actions upon that basis. And yet in my experience, anterior and posterior elements are involved. Thought is no more actually concerned with mere perception as a material for its activity than it is with memory which brings past experience up to date, and with imagination which deals with possible experience in the future. The comparatively unrelated elements in our present experience have little educational value: they must be organised into the experience of some particular personality. One of the characteristics of our minds is this organising psychic activity which binds together past, present, and future into one expression of a threefold temporal unity—three times in one time. And this same is true of Space: for the activity of the imagination in thought brings together in one unitary experience the uttermost parts of the earth with at the same time the realisation that one is sitting in a chair here and now.

To sum up, then, there is this threefold aspect of experience, past, present and future, which finds its psychic coördinate in memory, perception, and imagination, which are in turn but consciously analysed aspects of one unitary process of thought. One of the things, therefore, that we do when we think is the subsumption or organisation of the diversity of phenomenal perception under the unity of thought through the activity manifested by a living personality in his experience.

There are several implications of the organising activity of thinking that require consideration:

(1) There must be some community between the mind that thinks and the object thought about—i. e. some correspondence between the course of nature and the mind of man. Disparate elements, unhomogeneous particulars, cannot be organically related in the unity of conception. There must be a certain mutual adaptation between the mind that thinks and that material about which it thinks. A thought can have no human signification apart from the thinking process.

(2) Hence, the distinction between the subjective and objective is never made in the actual process of thinking. It is a psychological impossibility to place the thought as a reality self-existent outside the mind. Thought *is* thinking, and *is* a form of experience; and part of our experience is thought. Exter-

nality, objectivity are not qualities of thought, but of its manifestation in a material world. The distinction between subject and object may be made retrospectively or prospectively, but never in actual present experience of materials, for this experience implies by its very nature the unity of the subject and object.

(3) All thought has an undertone of emotion, ranging from feeling so faint as to be an unconscious accompaniment of the mental activity (e. g. in doing a mathematical example) up to emotion so intense that it interferes with, colours, or directs and controls the intellectual part of the activity-experience. Thought is therefore accompanied by a varying degree of self-consciousness.

(4) There is involved in all thought, either consciously or leading to later awareness of it, some element of purpose or aim or end. The variously interrelated system of purposes which makes up our experience depends for its variations in detail upon accident, conscious aims, and ends unconsciously involved and only later coming to consciousness.

II. STANDARD

No matter at what point we take up questions of educational theory and practice we find involved either directly or indirectly the idea of standard. "Standards of education" is a favourite topic for professional discussion; pupils and students are required to attain a certain "standard" before they are promoted through the grades or admitted to college; and certain textbooks in each subject are qualified as "standard." The variation in the popular use of the term and the differences of meaning attached to it in educational discussion involve a somewhat careful consideration of the meaning of the word "standard" and of its implications for a philosophy of education.

In considering the problem of the standard, we have to resolve it into its component parts to discover the questions that are implied in the general term. Such a treatment necessarily involves aspects that are essentially ethical in their character and some that are epistemological; but such phases are naturally implied in the general process of experience, and especially when this process is regarded from the point of view of the method of education. Some of the questions that suggest themselves are

the following: (1) Is the need of a standard instinctive? Is it a category of the possibility of progressive activity? (2) Does the realisation of the idea or concept of standard grow up as a distinction within experience, or is it imported from outside, and imposed by maturer persons or by society? (3) Is the standard a material thing,—a form? or is it a spiritual idea by means of which one interprets the material? (4) Is the problem to be regarded from the functional point of view as a process of standardising the experience of the individual? (5) Are judgments of value one aspect, conscious or unconscious, of every phase of experience, or are they a special phase of the operation of the mind?

The solution of these questions will be implied in the consideration which follows, rather than explicitly stated. They are problems which rise to consciousness when the function of standard is first consciously realised as part of the method of education. The character of the solution offered has varied alike with the time and the prevailing temper of the age in which the problem has suggested itself. At the present day in America, where the method of education is one of the *loci critici* of both Sociology and Philosophy, an analysis of the elements involved seems to be required, especially since *tot homines tot sententiae* still remains true of education.

Standards concern themselves with three aspects of our experience:

(1) They deal in the first place with the problem of *what* we do. Certain things are to be done; others are not to be done. The sphere of activity, moral or educational is more or less definitely marked off and bounded; a list of habitual acts and of conventional activities is prescribed; penalties of varying degrees are attached to faults of omission or of direct violation. There are unwritten laws, codes of laws which an older psychology would see graven on the tablets of the mind; there are vague popular ideas of better and worse, higher and lower, right and wrong; there are group standards and the consciousness of certain "things no fellow can do"; and there is a constantly fluctuating process of adjustment between material and ideal interests. Such problems come within the scope of Ethics, Sociology, and Education.

(2) There is in the second place the question as to *why* we perform an action. From this point of view there is involved the consideration of motive, impulse, habit, and the adjustment of ideas for and against a certain course of action or the formation of a particular habit. Such a series of problems comes partly within the sphere of Ethics and partly within that of Metaphysics.

(3) Lastly there is the problem of *how* we do anything. Beyond the fact of the action, there is the question of its method. It is not always enough to do a thing: it must be done in a certain way. There are questions of technique, of the selection of one standard method from various possible activities, of the subordination of means, of the formation of habits of skill, accuracy, precision, rapidity, of the function of facility, beauty, and truth in the doing of anything, and the development of power and control. Such are some of the problems which belong to the sphere of Methodology.

It makes no difference at what point we take our experience: we will always find some aspect of it that presents itself in the form of a problem to be solved. Were this not so, our whole existence would be passed upon the level of the mere instinctive performance of certain physical actions and in the habitual repetition of a limited number of comparatively simple psychological states. There would be no necessity for thought in the daily round and in the common task. To-day would repeat yesterday with no appreciable alteration. To-morrow would require no thought, for it would be but the replica of to-day. Thus the dull monotony of existence would run its course.

But that is not the character of our daily lives. We have but to stop to analyse any of the thousand and one situations in which we find ourselves between sunrise and sunset to realise that our doings are not all regulated and decided beforehand; that we cannot predict with certainty that such and such a situation will prove to be of such and such a character and have a result which we can accurately prophesy. Every hour of the day has its *unknown factors of experience*, upon which we cannot depend, and which will modify our actions in ways which cannot be foreseen. Just as on a large scale the decisive situations in our lives cannot be seen afar off like tiny clouds on the horizon, so in a more

limited scene, we cannot say what the hour will bring forth, nor say with assurance that we shall actually do thus and so because thus and so are what we would like to do or think we ought to do. There is always some unknown phase of the general situation, some aspect of the environment that we have overlooked or have been unable to calculate—some factor that is not a constant but a function.

What then is the individual to do in the face of such uncertainty? Is he to be absolutely without guidance? Are there no rules to help him to meet the difficulty and solve the problem? That is the first thought that enters one's head. Here is a problem in arithmetic which can be solved by remembering a certain formula or rule. Here is a problem that arises in actual teaching in my classroom; I want something that will solve the problem. What is more natural than that I should seek some rule that will give me the key to the situation with the same ease with which the formula gave me the answer to the mathematical difficulty.

Let us see, however, whether, like the old woman in the fairytale, we are not in our unthinking haste wishing something we shall later have to wish undone. What would such a method of getting answers to our problems involve? Would it not mean that each situation would have its rule? I symbolically represent the first twenty-six of to-day's experiences by the letters of the alphabet, and find that of these A, B, D, F, G, H, I, etc., represent experiences in which there is some element of problematic uncertainty. Suppose that I believe the best method of solving such problems is by rule. What is the result? Will I not have to know the rules for solving situations A, B, D, F, G, H, I, etc.? But how am I to know that I have really situation A or D or H? Will not that involve a multiplicity of minute rules which, simply because life is so complex, I can never hope to learn? Further, if I represent to-morrow's experiences by A¹, B¹, C¹, D¹, E¹, F¹, G¹, H¹, I¹, etc., how can I know that the rules which solved situations A, D and H, will also solve A¹, D¹ and H¹? The very fact that in the course of a week's experience I find myself in situations A, A¹, A², A³, A⁴, etc., is in itself a proof that the *exact* situation never twice confronts me. Therefore I should have to have a rule for every situation, or else a formula so general that

it could be applied to all "A" situations. But it is not the element of similarity, the common "A" in these situations that causes me trouble. It is the new, the accidental elements, the unexpected variations, the overtones of significance which prevent me from seeing the similar points and from applying the formula prescribed for situation A. Further, the very fact that there are these new elements in the situation make it a *new* situation, for there is no reason why the elements of difference from situation A represented by A¹ and A² should not be the determining factors in my reaction to these latter situations. As far as my graphic representation of these experiences is concerned there is no justification for representing them simply as A, A¹, A², etc. They are more adequately represented as: 1AB, 2AC, 3AD, 4AE, 5AF, in which the numbers represent the sequence of situations and A, one common element in all, while B, C, D, E, and F represent symbolically and in summarized form the totality of differing concomitants of A. Further, suppose that I *do* have a rule for "A" situations and apply it conscientiously whenever I recognise such a situation. Three difficulties arise:

(1) The element A may be so insignificant in the situation 3XAC in comparison with the elements represented by CX that I fail to recognise it as an "A" situation and take it instead as a C situation in which the elements are more complex—C (17A) PQRZ.

(2) I am bound by the rule to react in a prescribed, authorised, predestined manner to a situation, only one of whose elements is regarded as definitely fixed. As a result of this a multiplicity of other reactions are deliberately rejected and one chosen as the necessary one. I say my experiential creed, "I believe this situation to be thus and so." I have, therefore, not reacted to the *actual* situation, but have created an artificial situation to which my formula will give me a solution of some sort. But I am distinctly shutting my eyes to some of the elements involved. I am considering situation "A," because I have a "*rule for situation A*"—but I am not considering the actual situation AXC because I have no rule for so complicated a situation, and still less so for an experience whose elements may be represented as CAPQRZ.

(3) The moment I deliberately shut my eyes to part of the situation, the moment I set bounds to my vision by any creed which narrows me down to the single aspect A, that moment I cease to be free, but am constrained by the laws of the situation, by the rule which not only tells me what to do in that particular situation, but which makes me close my eyes to the richness and variety of my experience and say that it consists of only this paltry aspect "A" which can be confined within the narrow limits of a rule of conduct or a maxim of the most efficient reaction.

To sum up: our experience continually presents for our solution rather complicated problematic situations. By analogy we seek to solve the problem by the application of some rule. Such a procedure has the obvious advantages of being simple, safe, and speedy. But its simplicity is gained only through the wilful neglect of the difficulties, and its safety is only hypothetical. The disadvantages of any such short and swift method are: (1) It often emphasises the unessential element in a complex situation and overlooks another factor that is really determinant; (2) it creates an artificially simple situation to which it is applicable, by the deliberate rejection of certain actually existing elements; and (3) it limits my freedom and makes me the slave of a rule and the second determined factor in the solution of a situation.

It would seem, therefore, that if the problematic experiences which I have to solve are to have any educational value their solution is to be sought in some other way. If the solution cannot be found in the materials or elements in the situation, may it not be found in the other factor—the personality of the individual who has the experience? If it is not a mechanical matter of static elements, may not a clue be found in the *processes of personality*? May it not be a *principle of activity* that we are really in search of, when we try to solve a problematic situation?

The search for standards is universal. It is one of the common needs of our common life, however unconsciously it may lie hidden beneath the variations of daily experience. The need of food, shelter, and clothing which impels much of our activity that is physical is paralleled in the ethical sphere by the search for standards, which may spring out of the physical and which certainly react upon the material of our common experience.

This impulse to discover standards is of great significance for education. Its appearance marks the time when man becomes

conscious of his humanity. Life is now raised to the level of an idea. The significance of human everyday acts is seen, not in reference to the stubborn material with which we have to strive, but in relation to the ideal which we are seeking to realise. It is this spiritualising of materials which is the objective task of education: it is the revelation of the pantheism of nature which is the first step towards the realisation of the divinity in man.

III. THE PHILOSOPHICAL SIGNIFICANCE OF ENDS

As soon as an end or purpose is thought of merely as end, i. e., as finish, conclusion, something shut up and closed, from that moment does it lose all pragmatic vitality and all energetic significance for a functional theory of education. In this sense, "end" has no teleological significance, for its reference is purely retrospective. It can be interpreted only as the conclusion or completion of a process which had such and such a beginning, and its significance is only that it *is* the end of that beginning.

In any case of this simplified process whose end is merely conclusion, there is no loss of energy even in the ideal sense. What was kinetic, so to speak, now becomes potential. That power which the process had in it with reference to end, it now has in another way with reference to means—i. e., the phenomena which were the conclusion of that process become in turn by virtue of their character of finality in respect to the first process, the starting-point of a second, a third, etc., so that we get a series of hierarchy of "ends" which when viewed from the standpoint of evolutionary Idealism are but microscopic phases of the cosmic development. Of this the ordinary experience of every individual furnishes abundant illustration, which has been to some degree systematised in the various moral theories that have been evolved in the course of the history of human thought.

Again, from another point of view and elaborating this simple phase, we find that, especially in the complex of phenomena that go to make up social life, a phenomenon may occupy at the same time several positions, more or less genetic or final in several sets or series of processes, each of which is genetically inter-related and each of which is teleologically potential. (e.g., the average human being in his daily relations.)

A process itself ceases to exist as such when it has accomplished its end—i. e., realised its idea. But inasmuch as a process is not concerned primarily with the individual, but is logically related to the universal, both in experience and in its reflex in language, the process gains a new reality. If it ceases to exist as a phenomenon in the realm of fact, it nevertheless has its reality lifted to a higher sphere of idea, where it exists as a formula, a definition, a law, hereafter determinative but not constitutive of reality. From this point of view, formulae, definitions, and laws have a peculiar kind of reality, since they are ontologically conditioned by complexes of phenomena upon which, however, they do not depend for their epistemological significance. This is where the danger comes in of applying too rigorously the Pragmatic canon of efficiency, inasmuch as the validity of a phenomenon or a process does not depend upon existential conditions, any more than the validity of a universal proposition in a syllogism depends upon an enumeration of particulars.

In so far as process does realise its ends it is a true process—i. e., it is one with its ideal, without any teleological interpretation from a human standpoint being at all necessary, though from the absolute point of view a process which is actualising itself is teleology made manifest. It is conceivable that an idea, in the sense of a potential concept or a series or system of purposes, may be realised in a process without ever being existent as a percept in a human mind. Only so far as the mind of man corresponds to the order of nature does this experiential reproduction of the idea of the process occur—i. e., it becomes a part of *his* world, not merely of the world or cosmos in which it exists already necessarily as an idea.

When this correspondence of the phenomena of nature with the mind of man happens also to have an emotional correspondence at the same time with human conceptions of what is good, then popularly nature is said to be teleological. This tendency on the part of the human mind has done a great deal to obscure the real question at issue and to complicate the problem by the introduction of purely accidental and analogical elements. There must be borne in mind the danger of interpreting what may be called cosmic teleology in the terms of human moral concepts and from the point of view of human analogy, for the following reasons:

(1) At each stage in the evolutionary process the idea of teleology has a different content. The teleology of the amoeba, worm, fish, carnivorous and herbivorous animals and man is different and may be contradictory. From this point of view the human conception of Teleology is genetically conditioned by the process of development of which it is a part.

(2) The process of Evolution affords no genetic or logical reason for the ultimate validity of human ideas of moral purpose.

(3) There is no general agreement among mankind as to ultimate conceptions or standards, and no man has *a priori* concept of purpose.

The mechanical and teleological interpretations of Nature are in need of a synthesis. The fact that they are not mutually exclusive or contradictory implies that they are specialised points of view and suggests that possibly a common basis can be found for their interpretation. It would seem as if the mechanical view involved the interpretation of the phenomena of nature from the physical level and in the terms of the concepts of mechanical science. Even in biology, where we have to deal with matter in an organic form, we still find the attempt made to interpret the phenomena of life in mechanical terms. In similar fashion, the teleological interpretation of Nature is a purposive explanation, generally in terms of human concepts of end and volition.

Both of these partial and complementary views can be harmonised only in the light of some principle of idealistic interpretation from the cosmic point of view. Then the mechanical fact and the ideal significance become one.

It would seem meaningless to apply the concept of human Teleology in a wholesale way to the cosmic process. To do so means that we are applying it to phenomena of various qualities with which it is not homogeneous, and consequently the arguments based thereon are possibly fallacious. If we do wish to make this cosmic application of teleology, we shall have to substitute for our human teleology the conception of cosmic teleology: and the two are by no means synonymous, any more than human good and evil and cosmic good and evil are necessarily identical.

There is frequently a confusion between the *meaning* of a thing and its *origin*. A thing cannot from the same point of view be interpreted *both* in terms of its origin and of its mean-

ing, purpose or end. The ontological inquiry is only regulative; the epistemological is constructive.

From the mechanical point of view we cannot properly speak of purpose, which is an idea that belongs to the volitional level of existence. Teleology cannot apply to facts as *facts*, but only to the *idea* of which they are the manifestation, embodiment, or realisation. Mechanism deals with forms; Teleology deals with ideas and principles.

The conception of process implies, in the first place, elements in relation, and, in the second place, ideas becoming realised. The former constitutes the mechanical, and the latter the teleological aspect. From the point of view of the process, into which the moral element does not enter, the idea becomes realised through the interaction of the elements, and we have a progressive relation which depends for its actuality upon the mechanical conditions which it presupposes, and for its reality upon the idea which it involves as the epistemological condition of its appearance.

Relativity is a controlling idea that has been too little emphasised in teleological thought; and the various meanings given to the term Teleology by the physicist, the biologist, and the ethical theorist have been overlooked, though it is just these small additional elements that enter into the concept as held by each which cause the real confusion and involve all the logical difficulties in discussion. Purposes or ends in the mechanical and in the biological sphere are obviously different from purposes or ends in the moral sphere, so that the whole question of teleology has been complicated by the confusion of merely mechanical elements with those that are purely volitional in character. In addition to this, the discussion has been colored on both sides by emotion, and has been biased by mutual exclusion on the part of both the scientist and the moralist.

The conception of purpose does not imply an *a priori* determination of the means. The distinction between logical necessity with regard to form and psychological reality with regard to content must be borne in mind. The fact that the form applies to various kinds of content involves the existence of tentative solutions to problematic situations, either physical or intellectual or ethical.

Hence, though Evolution may give the form to the process of cosmic development, the content may either progress or regress, may be "right and good" or "wrong and bad" from the point of view of formal perfection or complete adjustment, merely *qua* process. Evolution works either way. It does not follow, however, that what seems to us as regression may not after all be a part of the general process of nature's advance, and only seem regress from the human point of view, which is limited by the conditions of human intelligence. When the truth of form and the truth of facts are synonymous then the conditions of ideal teleology are fulfilled. There is then no popular distinction of phenomena and processes into "artificial" and "natural," of which the former relate to the operations and productions of man, while the latter refer to nature and to God. The world of nature possesses potentialities which man may actualise, create, develop, or liberate, much as the chemist liberates chemical substances and discovers, literally, new elements. The principle of the conservation of energy demands a belief in the potentiality of nature. Idealism demands a belief in the interpretative power of humanity.

So long as we have the phenomena of the world as elements in the problem, so long will mechanical terms have to enter into our interpretation. But so long as we have faith in the ultimate purposes of the universe, so long will idealistic method interpret the results of our experience. The fact is determined mechanically in many instances but the end or purpose or result is determined teleologically. This *may* apply only to certain cases, e. g., my walking to a certain destination is determined by the direction of the streets, by the number of the people in the way, by wind, rain, etc., but my destination, which logically precedes my action, is itself determined only by my idea, or by the system of purposes which constitute the directive element in my experience. The whole process of experience consists in the constantly progressive interrelation of the mechanical conditions of experience and the conscious recognition of the teleological ideas that are involved in any process of human thought.

CHAPTER VIII

THE FUNCTION OF METHOD

The problem before us is to show that theory and practice are not two separate entities brought into relation in the course of experience, but are essentially phases of a single and unitary activity—differentiated aspects in every phase of individual and social activity. Theory and practice are complementary phases of the larger concept of method or of the function of intelligence in experience.

It is natural that, in the genetic process of historical development, these two phases, which are in quality so different, should be regarded as separate and self-existent in a very dualistic manner. The knowledge of how a thing should be done was regarded as something very different from the ability to produce the result in question, and this divorce between head and hand was all the more emphasised when one class of persons planned and directed work which another class of men carried out in a more or less blind and unconscious, though technically skillful manner. To know what was to be done was quite a different kind of knowledge from the knowledge that comes from the power of being able to do.

In education, even, where this dualistic basis of work is more uncritically accepted than in other branches of activity because it is less apparent, there is often to be found ample illustration of this mechanical conception of the relation of theory and practice. Courses in "theory" in normal schools and colleges are often complete in themselves, neither growing out of the student's experience nor leading to a reconstruction of it; while on the other hand their "practical" work, dealing with the actual problems of class-room experience and with their own very vital relations to their pupils, seems to have a warmth and vitality and a near-

ness to them that abstracted lectures on theory do not possess. In the same way in the religious life of many individuals there is, perhaps unconsciously in many cases, this separation between the thoughts that they have about conduct, about ideals, about the things that they ought to do, on the one hand, and the this and the that of the daily round and common task, with its manifold of petty commissions and omissions.

If we attempt to discuss this dualism between theory and practice we find two general attitudes among men.

There is in the first place one common among men who are engaged in work which deals largely with the materials of the earth and which requires little thought save that involved in tradition, inherited custom, and the performance of a series of annual habits that together approximate a personality. These are they who are content to toil, without asking why or how. Their fathers have done so; why should they do otherwise? Thus they were taught; why should they better the instruction? It is harder for the mind of one of these to entertain the new idea than for the nerves and muscles of the body to go regularly through the accustomed occupations of the circling year. The mechanics of habit have become to them all in all. They have a mental inertia and a momentum of bodily habit neither of which can be changed. There are teachers of this type, who teach as they have been taught and who feel uncomfortable and in strange places and unfamiliar ways if circumstances oblige them to take up new material or to use old material in new ways. They are those who always come back. "Fresh fields and pastures new" have no attractions for them. The practice of the good old days in the good old-fashioned way is their very life, and any theory which would cause a break in the regular course of long-standing habits is not taken kindly to.

In addition to the class of people and teachers who dislike any modifications of practice and who leave theory as an unconscious part of their experience, there are those who believe that theory is something that is acquired "en bloc," and is put into the mind much as a Lockean idea, by being written upon a *tabula rasa*. Theory from this point of view is a certain mass of precepts, rules and recipes for behaviour, for the conduct of classes, for teaching lessons, and for rightly and duly administering all the details of school life. This view is perhaps more prevalent among those

who are being trained for teaching than it is among those who are training them. The young teacher comes too quickly upon materials and methods which he has not time properly to organise as parts of his own experience, and in his haste to get command over these new materials and activities unconsciously asserts this dualism by seeking to regulate his experience by precepts instead of by principles.

In these two attitudes to theory and practice—the first ignoring any conscious theory, and the second making theory something external to and imposed upon practice—we have two stages in the genetic process which culminates in the realisation that theory and practice are both aspects of the one process of experience, though the emphasis placed upon either may be infinitely varied in diverse times and places. Instead of having as theory what someone else thinks and as practice that which you do; or theory something you think and practice that which you do, however unconnected with that part of your experience which is thought—instead of this, theory and practice are *one*; they *are* experience; they are acting one upon the other in everything we do, in every lesson we teach, in all we think, and say, and write. Our experience is an organic part of our personality, and our theory and our practice are organic parts of our experience. They grow, develop, change, modify in many ways and from various causes, but they are always organically related to our experience and always are interrelated, terminal aspects, so to speak, in consciousness.

The discovery of laws of nature and the formulation of principles of human activity are two of the latest and highest achievements of thought. Both stand at the upper end of a long line of development from beginnings so simple, crude, and unformed that it is only a retrospective interpretation of thought that discovers in the apparent simplicity of these genetic conditions the “promise and potency” of later development.

It is possible for the investigator to consider anything that grows from simple beginnings and develops into a relatively higher and more organised thing from two different and contrasted points of view. We shall find that, in every one of the sciences and spheres of investigation which have to deal with phenomena subject to the general process of evolution, these two points of view are involved. Sometimes one is emphasised, some-

times the other; but in every instance each point of view will be seen to imply and involve the other two if we think consistently and in an organised manner, for nowhere more than in the realm of thought are relations more certain to make themselves felt by those whose minds are open to the light and faithful to the truth.

(1) Briefly in considering the process of development of anything organic in character, we may look upon it in its simplest and original form, in the embryo, so to speak, from which the later organism is to develop. Such a point of view may conveniently be called Genetic. (2) Or, instead of looking at the past origin of the organism, we may try to discover what the purpose of its existence is, what aim and ultimate end is realising itself in and through the various activities of this developing organism. Such a point of view is known as Teleological.

Neither of these two methods of interpretation, however, is complete in itself, or ultimately valuable if separated from the other. Uniting the genetic fact and the teleological interpretation, both of which are *legitimate inquiries* for the scientist and for the philosopher, there is the *functional* point of view, which partakes of the nature of both of the others. It emphasises the process of the experience of the organism, and considers the manner in which it grows, acts, and reacts, and the different processes that are involved in the gradual organisation of its various activities. In a word, it deals with the *method* of the organism. Of this method the primary genetic conditions and the ultimate teleological idea of purpose are but phases: the reality of the organism lies in the functional interaction of the idea which is seeking realisation, and the form which is demanding some kind of idealisation. In Education, therefore, the emphasis cannot be placed solely upon the immature and developing child on the one hand, nor on the other hand only upon the ideals of education. The two must be realised in their organic relation, for only then is education performing its true function. It is through this process of interaction that social purposes gain reality, and it is through the same process that the immature potentialities of the children gain ideal value. The function of education and the ultimate method of experience then is twofold: it consists of the progressive interaction of real children and social ideals—a process of interaction through which the original char-

acters of the children become idealised and at the same time the ends and purposes of society become realised.

Historically these three aspects have at different times dominated philosophical thought. Each has its distinct outlook upon the phenomena of experience, and the differences that exist among the three are fraught with great differences in implication from the point of view of educational theory. One has only to consider obvious cases where educational theory emphasised the teleological while educational practice based itself upon the genetic, to realise that there can be no permanent truth or value in education as a social process or as a method of individual development until these two points of view are properly realised in their functional interrelation.

The necessity for placing due emphasis upon this interaction between genetic conditions and teleological ideals will be all the more evident from the analysis of experience which follows. Together the three form a unity: they constitute the only organic unity which education can have as a method of human experience. This unity lies at the basis of the functional interpretation of any of the phenomena of experience. The thing considered is one, a unity, having many sides or aspects, any one of which may be emphasised and made central for the time being, and in so far as any particular purpose is realised at any particular stage in experience, in so far do genetic and teleological aspects come into functional relation, and the reality of the method is manifested. One has only to consider the different aspects under which the tree may be regarded by the farmer, lumberman, and botanist; the child, by parent, teacher, or another child; the home by government, father, mother, or servant; to see that the reality depends upon the completeness with which the particular phenomenon, organism, or process, embodies in its function the teleological ideals which, from any particular point of view, have been discovered to be latent in it. In each case, whether the conditions under consideration be regarded primarily from the genetic or from the teleological point of view, there is underneath all partial manifestations, all aspects and forms, an underlying principle of development, which gives them unity, and is in reality *the method of the process*. This principle binds together the three points of view, because the organism in the course of its development at different steps involves the characteristic elements in

each of these three fundamental points of view. There is, therefore, this objective unity which is characteristic of anything which conforms to the principle of evolution, quite independent of relationship to human experience.

This objective unity has its subjective aspect in the fact that these three possible ways of interpreting experience are in reality phases of the method of the mind's operation. Once the fundamental psychic unity of mental processes is realised, it follows that there can be no ultimate opposition between these phases as special branches of method, whether or not we use the terms Feeling, Thought, and Volition in Psychology, or Genesis, Function, and Teleology in Epistemology. As our thought develops, they will be seen more and more to be in organic relation and ultimately to be in complete unity. If we could at one and the same time see the manifold of experience from this three-fold point of view, we would approach the realisation of that vision of the universe *sub specie aeternitatis* towards which Spinoza was unconsciously working.

This threefold character of the process of the mind's organisation of experience constitutes a subjective unity which is the counterpart of the objective unity found in the material of experience. The correspondence between the course of nature and the mind of man is here seen from the point of view of method. The method of experience consists in the progressive interaction of these two unities, in their conscious organisation in the process of experience, and in their subsequent elevation through the conceptual power of the mind, to the level of idea, concept, law, or principle.

Control as a Function of Method

In every branch of human knowledge or other department of thought that we break off from its organic connection for purposes of closer examination, we find certain specific things that inevitably suggest the relationship of this particular branch with the parent trunk to which it properly belongs. But in addition to these special close connections there are to be found in any part of the universe of thought certain general similarities and great underlying uniformities which necessarily characterise whatever in its constitution is organic. Consequently in attempting any

consideration of such a partial aspect of the whole field of experience as that of control as a function of method, we are obliged in the way of prolegomena, to pay some attention to those fundamental ideas which make it an organic part of our thought and at the same time give it significance in our experience as a whole.

The three great ideas that underlie a functional idealism have already been stated to be (1) Unity, (2) Interaction, (3) Development. What concerns us now, therefore, is to show that these fundamental ideas are necessary presuppositions to any consideration of control as a function of method.

(1) In the first place, in order to have any philosophy at all there must be recognised, either explicitly or implicitly, some kind of unity. The discovery of this unity has always been the goal of philosophic inquiry, whether objectively in the field of science, or subjectively in the realm of psychology and metaphysics. Every advance that has been made in or through thought has been due to a closer approximation to such a unity, for even the recognition of differences is indirect evidence of a unity. In that aspect of the general process of method to which we have given the name control, this same quality of unity is a prerequisite to its existence, either as a concept in the mind, or as a process objectively realising itself in experience. Control necessarily implies conformity to a standard, and therefore uniformity and ultimate unity. It involves, not ultimate disparities and permanently separable entities—for between these there could be no function of control—but an ideal of uniformity which involves, fundamentally and essentially, permanence as its principle. Without permanence there can be no control, and without control there can be no method, for in the largest sense method is the control of experience by principles.

(2) In the second place, however, the very fact that we have to search for this element of permanence and unity, and that it continually influences our thought, indicates that there is some sort of interaction between the standard that we set up as the goal or ideal of our thinking and the activity of thought itself. This interaction depends upon the general correspondence between the mind of man and the universe of possible experience which is one of the conditions of thought. At the same time it implies that this correspondence is at present only imperfectly

realised in our science and philosophy, and it indicates that in every fact we state, in every thought we think, and in everything which we believe, though not having seen, there is the continual interaction between this standard of unity on the one hand, be it expressed as truth, or beauty, or conviction, and the various phenomena of our experience which we sift and mould and train in various ways, even to remaking our personal world, in order to bring it more into harmony with this ideal of unity, which alone gives permanence.

(3) For, in the third place, were there universal permanence in fact as well as in principle, there could be no experience, which by its very nature implies an element that is not permanent. It is out of this manifold of changing manifestations that the method of human experience, through its functions of control, develops a unity. It realises the permanent despite the fluctuating instability of its confines, much as we realise the permanence of the ocean behind and beneath the ebb and flow of tide and waves which unceasingly change its limits. It is curious that this variability in phenomena, this multitude of apparent particulars should have been regarded by some as the strongest argument against the unity which philosophy postulates, when in reality it is a necessary condition of our experience as individuals and of the very possibility of our conception of unity and permanence. It is not only in metaphysics that the practical opposition between the one and the many is a criterion of the possibility of experience, but in psychology, where the whole treatment of perception, association, and memory depends on this element of disparity and change; in logic, where the whole process of deductive and inductive reasoning depends upon the relationship of the one and the many; and in theology, where, perhaps more than in any other branch of thought, questions of unity and plurality, and of the relation of the temporal and the individual to the permanent and universal, have appeared fraught with ultimate significance.

To sum up, it appears that we cannot have any experience without something fundamentally permanent as a basis; nor can we have experience without certain variations from this permanent, the disparity between which, when consciously realised in our experiences, forces us by the very constitution of our thought to make use of the permanent to control the transient and acci-

dental. This process is not only the method of experience but it is that by which we develop, for it is through the progressive reconciliation of the partial and the particular with the permanent that we realise in ourselves this very permanence that underlies all things, and therefore become ourselves more and more identified with the organic unity which we conceive the universe to be. It is this progressive self-development through interaction with different aspects of the fundamental unity of the world that forms the ideal, not only of a philosophy of education, but also of psychology, logic, ethics, aesthetics, and theology.

In addition to these presuppositions of control from the point of view of Idealism, there are certain fundamental conditions involved by the evolutionary method which also underlies this consideration of the elements of experience. In the actual process of control these aspects are not apparent in a consciously differentiated manner, but when the method of this control is realised as an idea, then it becomes evident that we have on the one hand a multitude of immature forms, of embryonic organisms, of partial manifestations, and on the other hand the ideal of the fully developed organism, the standard or ideal to be realised, the principle that is organising the diversity of manifestations into a unity, either in the phenomena of nature or in the realm of individual thought or social experience. There is the physical embryo in the process of evolution, gradually approximating the form of its highest organisation,—there is the feeblest evanescent impulse and instinct of the child flashing forth momentarily, opportunely seized upon, made a habit, and raised to consciousness through encouragement, direction, and control by those who are more mature; and there are all the social phases of the child's experience which require reinforcement and development through association with, and organisation in, the institutionalised life of the community and the race. The concept of control, therefore, from the evolutionary point of view, involves the interaction of the immature and the mature, of the lower with the higher, of the manifold and diversified possibilities of the developing individual organism with those habitual methods of control which form the standards of social activity.

When we ask what anything is, we can be answered in a variety of ways. We may have the object of phenomenon or process described to us, we may be told of what parts and elements it

consists, we may have its use or function explained, or we may be given a definition of it. Of all these meanings of a phenomenon or process perhaps the least satisfactory is the definition. There is something about beginning with a definition that seems contrary to the natural order of thought. Definitions are really the farther end of the process of thought. If concepts are to be organic parts of our thought they cannot be given to us ready-made as moulds out of which, by the simple process of filling in a content, we can turn ideas. They are forms of thought in the sense that there must be certain characteristic and essential ways in which the mind's activity functions, but these are subjective conditions of thought and not the formulae, concepts, or definitions in which we register the results of thought.

In the natural order of the mind's working we can only form a true definition at the end of our consideration of a given aspect of experience, when we have thoroughly become acquainted with the aspect or phenomenon and have separated the essential from the accidental, the permanent from the evanescent. Hence in seeking to understand the meaning of control as a function of method, we will attempt to work towards the possibility of a definition through an analysis of various uses of the term that are implied in different spheres of experience, rather than, in a more dogmatic and deductive fashion, to start from the definition and elaborate its implications.

A brief glance at the obvious and familiar instances of control of one kind or another that we meet in everyday experience indicates two broad general classes into which the concept divides itself: one of these is objective, external, and mechanical in character; and the other is subjective, internal, and organic. A closer examination will indicate the specific points of difference between these two phases of control, and will emphasise the significance of the latter in the method of experience.

(1) Perhaps the most prevalent, as well as the popular, conception of control is that of a more or less arbitrary imposition of superior power from an external source. From this point of view we are controlled in a large number of ways every day of our lives: the regular sequence of day and night, the vagaries of the weather and the variations of climatic conditions, the available supply of food, the unavoidable routine of business, and travel—all these, to a greater or less degree, control our actions,

and control them in a way that admits of little interference from us.

But in addition to the control of these external phenomena which constrain us in a physical way, there is the control which is exercised by human, as opposed to natural, law. This jural aspect represents a higher phase than that of control by physical phenomena, because here the element of human consciousness enters in as a dominating element. Here, too, the moral element first appears, in so far as any individual is at liberty to act contrary to the law. Yet this factor of choice and freedom of action is by the nature of the control imposed, reduced, in ideal at least, to its minimum, either through the elimination of the conditions necessary to the realisation of activity contrary to that legally demanded, or through the deterrent influences of predetermined consequences that are practically prohibitive of transgression.

We reach a higher ethical, though not so universal a stage from the point of view of the content of the control involved, when we come to that exercised in our experience by rules, precepts, maxims of action, conduct or thought. Here the range of the control varies in strength from conditions where these habitual rules and maxims take the place of organised legal enactments, as in the case of some savage tribes, down to the merest counsels of expediency which guide many trivial daily acts.

Here, however, the control is still imposed upon the individual from without, and from a moral point of view conformity to rule or precept has little to check our estimates of moral strength. As the criterion by which we judge is still an external one, there must always be the conscious reference to the standard before the extent of the conformity can be estimated. There is still the dualism, then, that existed in the case of legal prescription between the element that controls conduct and the individual whose act is to be judged or estimated; and as long as there is this dualism there cannot be true freedom nor the highest kind of activity. The conduct of life has not yet reached the level of an art. Human spiritual life has not yet become a conscious process; its idea has not emerged as the motive force in experience. This is realised only in the stage represented in the next and last conception of control as a function of the method of experience.

(2) There is, in any phase of common experience, a threefold phase of development through which it is possible to pass. In the

lowest stage the child or the individual performs actions through instinct or habit; the activity is almost entirely unconscious in the sense that it is not intellectually regarded as a process through which the individual may express himself; and consequently it corresponds to that level of conduct which is controlled by law, where there is the same blind, unquestioning obedience to objective authority. In the second of these phases of personal development there is the birth of self-consciousness. The child or the individual begins to objectify the activity in which he is engaged, begins to see himself as others see him, and for the first time realises, with a flash of that inspiration which illuminates the birth of personality, the ever-widening gap between the real and the ideal. Shortcomings from the attainment of the standard set before one are apt to loom disproportionately large, for this is the stage of self-criticism, where all one's activities are subjected to a control that is more direct, supervisory, and immediate than in the earlier stage of being under the law. Each action is measured by a standard of conformity, social, intellectual, and ethical, showing that the individual is in a transition stage, represented psychologically in the development of self-consciousness, socially, in the adjustment of personality to the manifold aspects of institutional life, and ethically, in the temporary adoption of a scheme of utilitarian morality strangely shot through with prophesies of pessimism and idealism.

Both these stages, which correspond exactly to those phases of external control that we have been considering, lead on, in the ordinary course of development to the third and last stage, which involves on the one hand inner and organic control by principle, instead of outwardly by law and rule, and on the other hand the fullest self-realisation as a spiritual self-controlled personality. How this final stage differs from those which genetically precede it now remains to be seen.

The species of control exercised by law, whether of nature or of the state, and by the conventions and rules of social and vocational activity, are to a greater or less degree a restraint upon individual activity, and yet at the same time conformity with what is demanded assures to the individual an ever-increasing degree of freedom. The observation of laws and social customs introduces an element of regularity, uniformity, or unity into the actions of men, so that one's plans of action can be the more

definitely made and freed from much of that uncertainty which the personal equation always introduces. Still, from the individual's point of view, as long as there is external or objective control, there can be no true freedom. This comes only when we have passed from the stage of self-consciousness and criticism to that of guidance by principle, in which each act of ours is the manifestation or realisation of the spirit that is within us. Practice and theory are in organic interaction, and this interaction is synonymous with the method of individual experience. Activity that is thus directed by the control of inner principle is truly free, for now the antithesis between individual and the law, between the actual and the ideal is reconciled in a unity which is nothing else than the spiritual life of man. The individual is now a self-controlled personality—an organism in which there is the possibility of perfect harmony, and in which at the same time there is going on in miniature that reconciliation of the many changing manifestations with the unity of principles which we see going on in all the phases of the life of the world. This freedom of personality is then one of the characteristics of the method of individual experience at the highest stage of its development. Control that was external has now become self-control. The standard once external, mechanical, and objective, has now become internal, organic, subjective, and exercises its control only in being the form in which individual activity realises itself. In the ideal of method, the ideal and the real of individual experience form a unity; the method and the standard become one, or are at least but terminal aspects of a unified activity, the content and the form giving reality to one another in the actual process of interaction. The standard then is the method, and the method is the standard; in the activity of a self-controlled spiritual personality the distinction between the two terms loses its meaning. That is the reason why it is difficult, if not impossible, to give an adequate definition of control. The relativity of the terms of the definition corresponds to the degree of our personal realisation of the factor of control in the method of our own experience.

In the control of our activities by standards or criteria, there are three stages which may be distinguished:

(1) *Instinctive or unconscious control by physical instincts and needs.* The control in this case is inherent in the nature of the

function itself, or is consciously expressed, in education for instance, in the social control exercised apparently arbitrarily by the mature members of society over the potential activities of their children.

(2) *Conscious or attentive control.* In this stage in the progressive socialisation of the individual there is a conscious and individual reorganisation or reconstruction of his experience. He has reached a stage in his development in which he can perceive differences in action and can realise the disparity between fact and ideal; he finds his actions involving deliberation, a balancing of motives and situations, determination and choice. Here the individual finds himself in a stage of transition, midway between the bondage to physical law and the freedom which comes from the active expression of a moral principle within.

(3) *Habitual control.* At this stage the individual realises his freedom through the law. He expresses the general principles of human activity at large. He has developed the method of his experience. He has realised how physical control and social sanction may be rationalised in individual thought, and he has formed a basis for further moral development. The aim of this stage is the functional expression of developed character, and the progressive organisation and valuation of experience. The educational implications of these three stages are well summed up by Aristotle when he says that "in the case of the virtues, a man is not said to act justly or temperately (or like a just or temperate man) if what he does merely be of a certain sort—he must also be in a certain state of mind when he does it: therefore, first of all, he must know what he is doing; secondly, he must choose it, and choose it for itself; and, thirdly, his act must be the expression of a formed and stable character." The interpretation of the process of experience from the point of view of activity always gives more significance to the materials involved. Education is always a process of giving meaning to the environment. The blacksmith hammers meaning into the iron as he hammers shape into the horseshoe. The carpenter builds an idea at the same time that he constructs a table or chair. Teaching in the same way adds to the significance and value and reality of the daily world in which the child is developing. The world grows as the child develops, and there is continual proof of correspondence and mutual influence between nature and the mind of man. Edu-

cation, therefore, becomes a continuous process of realising the possibilities of the materials which nature provides and of seeing the ideal and ultimate significance of those activities with which we are endowed and which form the motive force of all educational progress.

Yet human activity rarely attains such perfection of technique or realises the ideal of method. Consequently it seldom truly bodies forth the ideal, the divine idea, the logical concept, the definition, the method, in anything but a partial, one-sided, incomplete manifestation. This is true both of the fine and of the constructive arts, and of that finest and most constructive of all arts, the art of human life itself.

From the point of view of the material, there are two sides that have to be kept in mind in any consideration of the function of method. The first of these concerns itself with the possibilities which any material involves. These have to be recognised and liberated before they can become functional realities, before the potential energy involved can become dynamic in any sense significant for education. In the wood lie possibilities which when liberated become functional elements in human life as chair, table, oar, or pencil; in the boy lie possibilities which may realise themselves as butcher, baker, or candlestick-maker. The purpose in education, in this respect, is a twofold one: it has to recognize the further possibilities of both the conventional materials of education, and it has to become more deeply conscious of the human possibilities and the social significance of the child. It is only when the possibilities are recognised and then freed from limitations through the liberating process of education, that the ultimate significance of materials can be realised or their function apprehended in the general process of experience.

The second aspect that has to be kept in mind in any consideration of the materials of education is complementary to the one already examined. If the recognition of the possibilities of the materials is the positive side of the process, there is also the negative aspect which involves the clear realisation of the limitations of materials in their attempt to body forth something that is not material. There is a certain incompatibility between the material and the idea or ideal to be embodied, an inherent impossibility of the complete and permanent realisation of an idea in a material, unless these terminal aspects be disregarded, and the

functional interaction of the two be emphasised. If, to make the matter clearer, we think of the conventional limitations familiar to us in the pictorial representations of reality; of the temporal limitations in the subjective impression of music, or in the objective representation of sculpture; or of the local and temporal limitations which are forever conditioning man's realisations of his ethical ideals, we are forced to recognise the fact that there are aspects of reality which escape the imprisonment of the material, and overtones of meaning which are too delicate or evanescent for a material not finely tuned to respond to such harmony.

It is this very uncertainty as to how far he has attained insight into the real meaning of things, this lack of accuracy and completeness in the way in which humanity reveals or attains its ends and purposes, that leads man to seek something other than the material by means of which he may estimate the success of his endeavour or measure up his attainment with the ideal that he has set up before himself to realise. Hence it comes about in every sphere of life our activity is ultimately regulated by some standard, is directed to some end, and is, by the very nature of experience, bound to deal with material more or less inadequate for the purpose. In every phase of the common experiences of our common life there is the search for the permanent in the changing, for the universal underlying the particular, for the truth that is the core of fact, for the ideal that is at the heart of the real.

The function of standard is closely connected with this Janus-like activity of finding the ideal in the real and the real in the ideal. Retrospectively, a standard is a basis for the criticism of our achievement; from the point of view of present experience, it is an instrument for the control of our activity; and prospectively, the standard is an inspiration for the shaping of our ideals and purposes.

There remains the consideration of the question of the relation of standards of the two great philosophical ideas underlying this whole treatment of method and materials.

(1) *Evolution.* Genetically, a standard emerges as soon as an activity is raised to the level of an idea, as soon as the material becomes spiritualised, as soon as practice is idealised and reconstructed into theory. The necessity of standard-seeking and of

standard-forming can never be *explained* genetically; the study of the evolution of standards is a study of facts, and is neither a justification nor an explanation of them. At most, from the evolutionary point of view, standards are categories of activity. They are functional points of interaction between the ethical and the non-ethical, between conscience and impulse. Consequently the evolutionary significance of a standard is twofold: in the first place, the very fact of its existence at all implies a relatively high type of activity with a corresponding intellectual and moral development. In the second place, its organic character, in common with all other factors of mind, indicates an inherent possibility of development. The level of experience is raised from the physical to the spiritual and spiritual laws are of a higher order than physical laws.

(2) *Idealism.* The existence of a standard is synonymous with the possibility of idealism in any form. As long as there is a distinction between the actual and the real, between the existent and the ideal, there is implied some standard by which the difference is determined. There are standards of various qualities corresponding to the various levels of evolutionary development, and one may have, for instance, a standard which is little more than a material copy or model, or an ideal to be realised in a given material and through a special activity, or finally an archetype or divine idea which can never be fully realised in the limitations of earthly material or human mundane activities. As a standardising method, Idealism has two functions: in the first place, retrospectively and negatively, it indicates the disabilities of the material, and its unsuitability for the realisation of the idea or conception in question. It thus cuts off and eliminates the extraneous, insignificant, meaningless elements, the logically and materially accidental, and concentrates, so to speak, the essentials in a positive way by the very negative process of critical elimination. In the second place, prospectively and positively, Idealism then takes this nearest approximation to the ideal as the basis for further idealisation and carries the standard to a higher level, from which it will in turn react upon the earlier temporal material realisation, and will lift it to a higher level of reality, and so onward and upward in that continuous process of interaction between the ideal and the real which is the method of experience.

BIBLIOGRAPHY

- ADAM, JAMES. Religious teachers of Greece. Edinburgh, 1908.
- ARISTOTLE. Metaphysics.
Nicomachean ethics.
- ARMSTRONG, A. C. Transitional eras in thought. New York, 1904.
- BACON, FRANCIS. Works. (ed. Spedding, Ellis, and Heath.) New York, 1870-72. 15 v.
- BAGLEY, W. C. Educative process. New York, 1906.
- BAILLIE, J. B. An outline of the idealistic construction of experience. London, 1906.
- BAKEWELL, C. M. Source book in ancient philosophy. New York, 1907.
- BALDWIN, J. M. Development and evolution. New York, 1902.
Dictionary of philosophy and psychology. New York, 1901-5. 3 v.
Thoughts and things. London, 1906. 2 v.
- BEARE, J. I. Greek theories of elementary cognition from Alcmaeon to Aristotle. Oxford, 1906.
- BOSANQUET, BERNARD. Philosophical theory of the state. London, 1899.
- BRADLEY, F. H. Appearance and reality. London, 1899.
- BUTLER, N. M. Meaning of education. New York, 1905.
- CAIRD, EDWARD. Evolution of religion. New York, 1893. 2 v.
Evolution of theology in the Greek philosophers. Glasgow, 1904.
- CLIFFORD, W. K. Lectures and essays. London, 1904.
- COMENIUS, J. A. Great Didactic. (ed. M. W. Keatinge.) London, 1896.
Labyrinth of the world. New York, 1901.
- CONN, H. W. Method of evolution. New York, 1900.
- COPE, E. D. Primary factors of organic evolution. Chicago, 1896.
- DARWIN, CHARLES. Origin of species.
- DAVIDSON, THOMAS. History of education. New York, 1901.
- DESCARTES, RENE. Oeuvres. (ed. Charles Adam and Paul Tannery.) 1897-1908. 10 v.
Oeuvres inédites. (ed. Foucher de Careil.) Paris, 1859-69. 2 v. in 1.
- DEWEY, JOHN. Child and curriculum. Chicago, 1902.
The relation of theory to practice. 3rd Yearbook, National Society for the Scientific Study of Education. Pt. I. 1904.
- The significance of the problem of knowledge. Univ. of Chicago Contributions to Philosophy No. III. Chicago, 1897.
Studies in logical theory. Chicago, 1903.
- DEWEY, JOHN and TUFTS, J. H. Ethics. New York, 1908.
- DRUMMOND, HENRY. Ascent of man. New York, 1894.
- FISKE, JOHN. Destiny of man. Boston, 1889.
Meaning of infancy. Boston, (c. 1909).
Outline of cosmic philosophy. Boston, 1875. 2 v.

- FROEBEL, F. Education by development. New York, 1899.
 The education of man. New York, 1906.
 Pedagogics of the kindergarten. New York, 1900.
- GRAHAM, DAVID. The grammar of philosophy: a study of scientific method. Edinburgh, 1908.
- GREEN, T. H. Prolegomena to ethics. Oxford, 1890.
- HALDANE, R. B. The pathway to reality. London, 1903-4. 2 v.
- HARRIS, W. T. Psychologic foundations of education. New York, 1905.
- HOBHOUSE, L. T. Mind in evolution. London, 1901.
 Theory of knowledge. London, 1896.
- HÖFFDING, HARALD. History of modern philosophy. London, 1900.
 2 v.
- The problems of philosophy. New York, 1905.
- HORNE, H. H. Philosophy of education. New York, 1906.
- HOWISON, G. H. The limits of evolution. New York, 1901.
- HUME, DAVID. Enquiry concerning human understanding. 1777.
- ILLINGWORTH, J. R. Personality, human and divine. London, 1905.
- JAMES, WILLIAM. Pragmatism. New York, 1907.
 Principles of psychology. New York, 1899. 2 v.
 Varieties of religious experience. London, 1908.
 Will to believe. New York, 1908.
- KANT, IMMANUEL. Critique of judgment. 1790.
 Critique of practical reason. 1788.
 Critique of pure reason. 1781.
 Prolegomena to any future metaphysic. London, 1889.
- KIDD, BENJAMIN. Social evolution. New York, 1895.
- LOCKE, JOHN. Essay concerning human understanding. (ed. A. C. Fraser.) Oxford, 1894. 2 v.
- LOTZE, R. H. Logic. Oxford, 1888. 2 v.
 Microcosmus. New York, 1890.
- MACKENZIE, J. S. Manual of ethics. New York (c. 1901).
- MACVANNEL, J. A. Educational theories of Herbart and Froebel. New York, 1905.
 Syllabus of a course on the philosophy of education. New York, 1904.
- MARTINEAU, JAMES. A study of religion. Oxford, 1899. 2 v.
 Types of ethical theory. Oxford, 1901. 2 v.
- MONROE, PAUL. Textbook in the history of education. New York, 1906.
- MONTGOMERY, EDMUND. Philosophical problems in the light of vital organization. New York, 1907.
- MORGAN, C. L. Interpretation of nature. New York, 1906.
- MUIRHEAD, J. H. Elements of ethics. London, 1897.
- NETTLESHIP, R. L. Philosophical lectures and remains. London, 1897.
 2 v.
- ORMOND, A. T. Concepts of philosophy. New York, 1906.
- O'SHEA, M. V. Education as adjustment. New York, 1903.
- PATER, W. H. Plato and platonism. London, 1893.

- PAULSEN, FRIEDRICH. *Introduction to philosophy.* New York, 1907.
- PEARSON, KARL. *Grammar of science.* London, 1900.
- PLATO. *Dialogues.*
 Republic.
- RIEHL, A. *Introduction to the theory of science and metaphysics.* London, 1894.
- ROBERTSON, G. C. *Elements of general philosophy.* New York, 1896.
- ROSENKRANZ, J. K. F. *Philosophy of education.* New York, 1904.
- ROYCE, JOSIAH. *Spirit of modern philosophy.* Boston (c. 1892).
 World and the individual. New York, 1900-1. 2 v.
- SANTAYANA, GEORGE. *The life of reason.* New York, 1905. 5 v.
- SCHILLER, F. C. S. *Humanism.* London, 1903.
- SIDGWICK, HENRY. *Method of ethics.* London, 1907.
 Philosophy, its scope and relations. London, 1902.
- SIGWART, CHRISTOPH. *Logic.* London, 1895. 2 v.
- SMALL, A. W. and VINCENT, G. E. *Introduction to the study of society.* New York, (c. 1894).
- SMITH, WALTER. *Methods of knowledge.* New York, 1899.
- SORLEY, W. B. *Ethics of naturalism.* Edinburgh, 1885.
- SPENCER, HERBERT. *Data of ethics.*
 Education. New York, 1908.
 First principles.
- STEPHEN, LESLIE. *Science of ethics.* New York, 1907.
- STRONG, C. A. *Why the mind has a body.* New York, 1903.
- STRONG, T. B.: (ed.) *Lectures on the method of science.* Oxford, 1906.
- STURT, HENRY. *Idola Theatri.* London, 1906.
- STURT, HENRY.: (ed.) *Personal idealism.* London, 1902.
- TAYLOR, A. E. *Elements of metaphysics.* London, 1903.
 Plato. New York., n. d.
- WARD, JAMES. *Naturalism and agnosticism.* London, 1903. 2 v.
- WATSON, JOHN. *Kant and his English critics.* Glasgow, 1881.
 An outline of philosophy. Glasgow, 1898.
- WELTON, JAMES. *Logical basis of education.* London, 1899.
- WILLIAMS, M. V. *Six essays on the platonic theory of knowledge.* Cambridge, 1908.
- WINDELBAND, WILHELM. *History of philosophy.* New York, 1906.



STANFORD UNIVERSITY LIBRARY

To avoid fine, this book should be returned
on or before the date last stamped below.

816.6 Z d38		
AUG 26 1915		
Aug 26		
Reserves		
Ann 1966		
F DEC 6 1966		

370.6

C9261

No. 34



3 6105 006 528 926

BASEMENT



